DEUTSCH

High Performance Hermetic Connectors

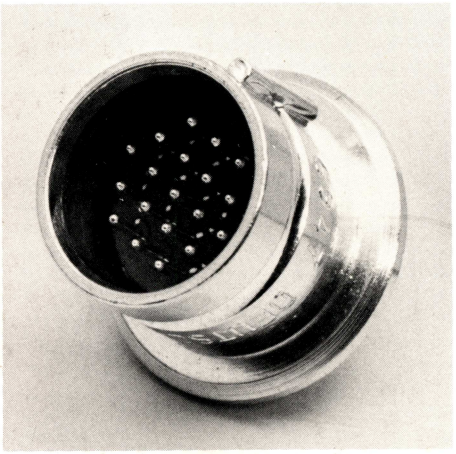
BULLETIN NO. 124

815 Series

RSM 5150

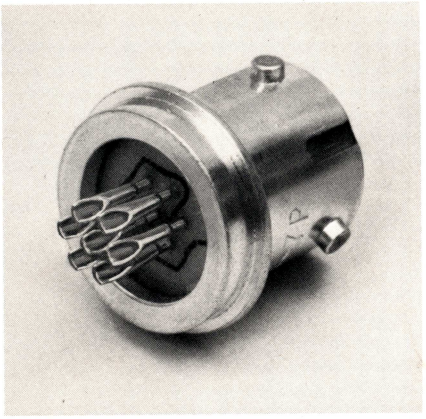
DBC 70H

DL Series



Rectangulars

RTK 57H

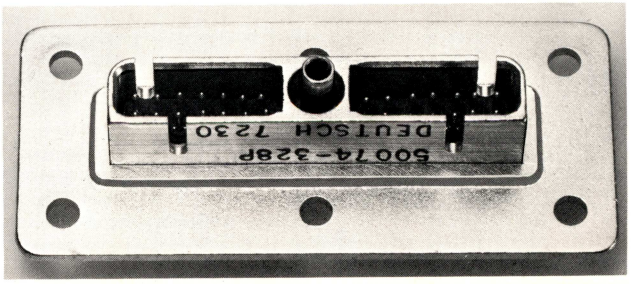


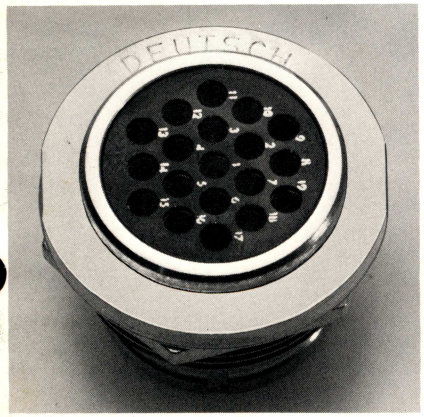
RSM 5100

DJL Series

DBC 30H

RTK 31H





DBC 50H

RBC 50H

RBC 70H

DEUTSCH

Deutsch High Performance Hermetic Connectors

CONTENTS **PAGE**

815 Series (Mil-C-0081511 Type) 2
815 Series Shell Styles 3
815 Series Insert Arrangements 4
DJL Series (Mil-C-0038999 Type) 5
DJL Series Shell Styles 5
DJL Series Insert Arrangements 6
Rear-Release High Density Crimp Type Hermetics 7
RSM 5130 Series 8
RSM 5130 Series Insert Arrangements 8
RSM 5130 Series Shell Styles 9
RTK 31H Series 10
RTK 31H Series Insert Arrangements 10
RTK 31H Series Shell Styles 11
RSM 5150 Series 12
RSM 5150 Series Insert Arrangements 12
RSM 5150 Series Shell Styles 13
RTK 57H Series 14
RTK 57H Series Insert Arrangements 14
RTK 57H Series Shell Styles 15
50000 Series 16
50000 Series Insert Arrangements 16
50000 Series Shell Styles 17
RBC 70H Series (Mil-C-81703 Type) 18
RBC 50H Series 18
RBC 70H Series Insert Arrangements 19
RBC 50H Series Insert Arrangements 19
RBC 70H Series Shell Styles 20
RBC 50H Series Shell Styles 21
DBC 70H Series (Mil-C-81703 Type) 22
DBC 70H Series Shell Styles 22-23
DBC 70H Series Insert Arrangements 24
DBC 50H Series (Mil-C-83723 Type) 25
DBC 50H Series Shell Styles 26
DBC 50H Series Insert Arrangements 27
DL Series (Mil-C-83723 Series 3 Type) 28
DL Series Shell Styles 29
DL Series Insert Arrangements 30
DBC 30H Series (Mil-C-83723 Series 3 Type) 31
DBC 30H Series Shell Styles 31
DBC 30H Series Insert Arrangements 32
Hermetics for Special Applications—DM 5623 33
DM 5623 Dimensional Information 34
DM 5623 Insert Arrangements 34
High-Density Feedthru 35
Hermetic Connectors with Extended Contacts for Flat Flexible Cabling 35
Filter Pin Connectors 36
RF Coaxial Connectors with Bused Contacts 37
Hermetics Qualified to Military Specifications 38
Appendix I—General Operating Specifications 39
Appendix II—Shell Polarization 41

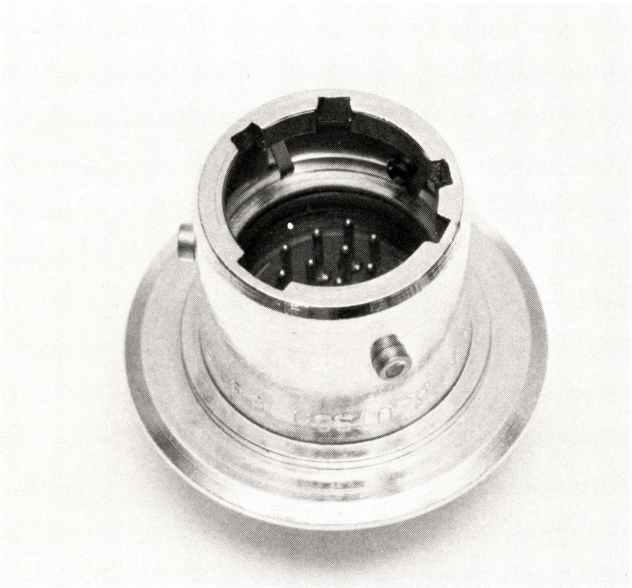
INTRODUCTION

Sophistication, variety and experience go into every hermetic connector designed and built by Deutsch. Deutsch hermetics offer superior performance due to a uniquely molded, one-piece compression glass insert. An insert which is fused directly into each metal shell. This design provides improved sealing integrity as well as greater dielectric separation, resulting in a high voltage rating capability.

Deutsch has the capability to produce any type and style of hermetic to meet the needs of extreme environments. Among some of the types available are miniature cylindricals, high-density cylindricals, high-density rectangulars, vacuum feedthrus and cryogenic connectors. Connectors to withstand temperatures down to −423°F, or as high as +600°F, and pressure applications of 10,000 PSI or more are also available.

Besides these connectors, Deutsch builds hermetics qualified to the latest military specifications. Deutsch Seals can be purchased to MIL-C-0081511D, MIL-C-0038999, MIL-C-83723, MIL-C-0026482, or MIL-C-81703. This brochure should help you find a connector for any application from Deutsch standard miniatures and subminiatures to filter pin conectors. All Deutsch connectors are completely built in-house utilizing carefully controlled processes and the latest materials. And 100% production line testing is performed to assure a leakage rate of less than 1×10^{-8} cc/sec @ 1 atmosphere.

Deutsch 815 Series
Advanced Design High-Density
Hermetic Connectors



A new high in connector technology has been reached with the Deutsch 815 series high-density hermetic connector. Featuring the latest state-of-the-art design characteristics for subminiature connectors, the 815 series is qualified to the Navy Specification MIL-C-0081511D. Available in both solder and crimp versions this advanced connector features the Deutsch compression glass seal.

The crimp version is an incorporation of the Deutsch individual Contact Release (ICR) plastic retention system, which allows for individual and independent insertion and removal of contacts for fast, easy yet reliable assembly and rework.

ORDERING INFORMATION

Deutsch Part Numbering System

B 815 11 D 08 — 04 P 1 XXX

Series:
A = Long shell series (100% scoop proof)
B = Short shell series (50% scoop series)

Basic Identifier

Shell Style:
11 = Solder mount receptacle (hermetic only)
14 = Single hole mount receptacle

Class:
D = Hermetic (solder pot) 175°C. (cold-rolled steel shell)
L = Hermetic (crimp contacts) 175°C. (cold-rolled steel shell)

Shell Size:
8, 10, 14, 16, 18, 20*, 22*, 24*

Insert Arrangement:

Contact Style:
P = Pins

Key Position 1, 2, 3, 4, 5, 6:
(position 1 – normal)

Modification Number

Military Standard Part Numbering System

M81511/ 42 F D 01 P 1

Basic Military Part No.

Shell Style: (Specification Slash No.)

Series 3 = Long shell series (100% scoop proof)
/42 Solder Mount Receptacle (Class D Hermetic)
/47 Solder Mount Receptacle (Class L Hermetic)
/48 Single Hole Mount Receptacle (Class L Hermetic)

Series 4 = Short shell series (50% scoop proof)
/50 Single Hole Mount Receptacle (Class L Hermetic)
/52 Solder Mount Receptacle (Class D Hermetic)
/54 Single Hole Mount Receptacle (Class D Hermetic)
/57 Solder Mount Receptacle (Class L Hermetic)

Class:
D = 175°C. Hermetic Solder Contacts
L = 175°C. Hermetic Crimp Contacts

Shell Size:
(use letter designation)

8	10	14	16	18	20*	22*	24*
A	B	D	E	F	G	H	J

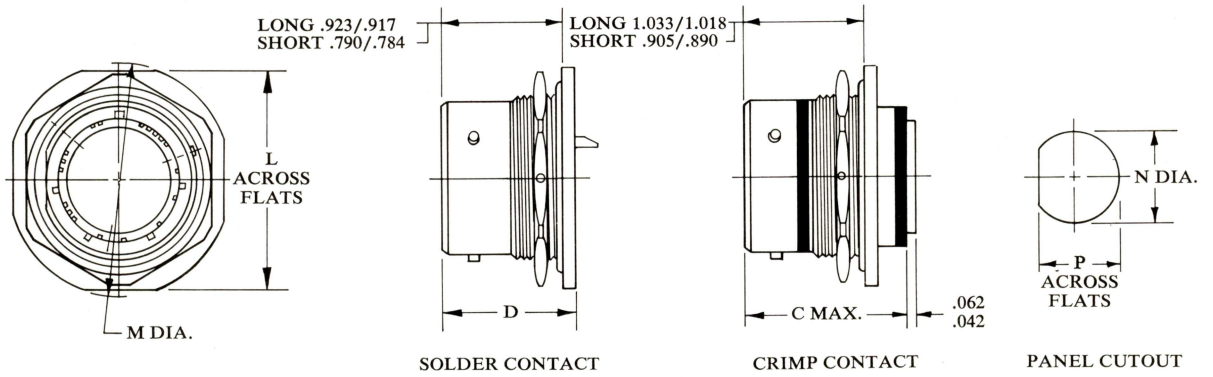
Insert Arrangements:

Contact Style:
P = Pins

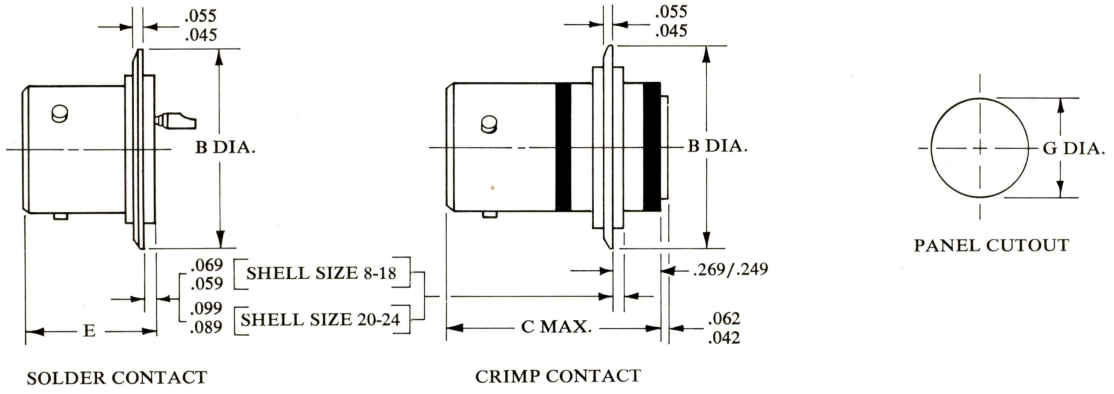
Alternate Keying Positions:
1, 2, 3, 4, 5, 6
Position 1 = Normal

Shell Styles
Deutsch 815 Series

HERMETIC SINGLE HOLE MOUNT RECEPTACLES



HERMETIC SOLDER MOUNT RECEPTACLES



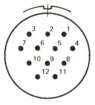
Bands shown are blue on connectors to denote rear release.

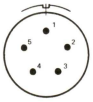
Shell Size	B	C Max.		D Max.		E ± .010		G ± .005	L ± .010	M ± .010	N ± .005	P ± .005
		Long	Short	Long	Short	Long	Short					
8	.945/.930	1.292	1.165	1.208	.895	.833	.710	.661	.979	1.062	.635	.605
10	1.070/1.055	1.292	1.165	1.208	.895	.833	.710	.786	1.104	1.187	.760	.730
14	1.320/1.305	1.292	1.165	1.208	.895	.833	.710	1.036	1.391	1.500	1.010	.980
16	1.446/1.431	1.292	1.165	1.208	.895	.833	.710	1.162	1.516	1.625	1.135	1.105
18	1.570/1.555	1.292	1.165	1.208	.895	.863	.730	1.286	1.641	1.735	1.260	1.230
*20	1.816/1.801	1.292	—	1.208	—	.893	—	1.441	1.766	1.860	1.385	1.355
*22	1.941/1.926	1.292	—	1.208	—	.893	—	1.566	1.891	1.985	1.510	1.480
*24	2.066/2.051	1.292	—	1.208	—	.893	—	1.691	2.016	2.110	1.635	1.605

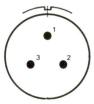
**Shell Sizes 20, 22 and 24 are available in long shell series only.*
Notes:
(1) Max. panel thickness .125.
(2) All dimensions are in inches.

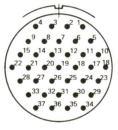
Insert Arrangements
Deutsch 815 Series

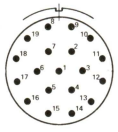
8-04

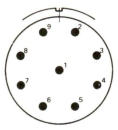

10-12


10-05

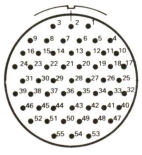

10-03

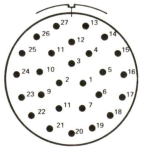

14-37

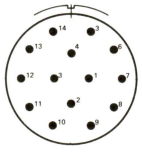

14-19

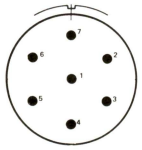

14-09

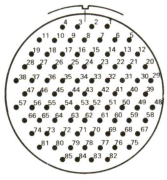
14-04

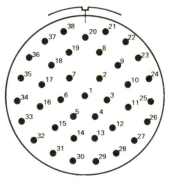

16-55

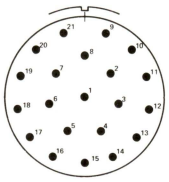

16-27

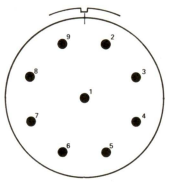

16-14

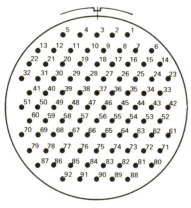

16-07

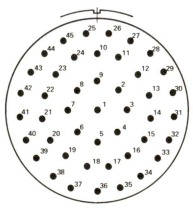

18-85

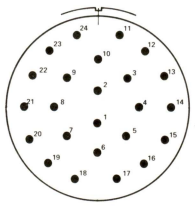

18-38

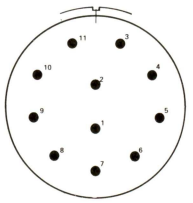

18-21

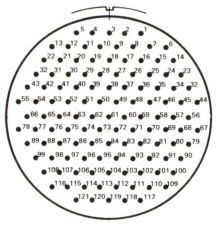

18-09

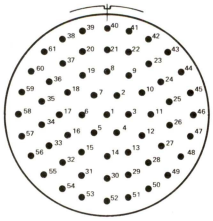

20-92

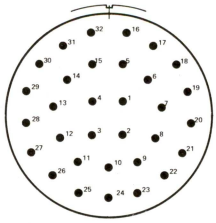

20-45

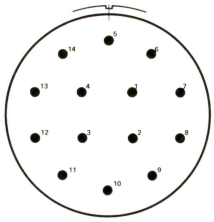

20-24

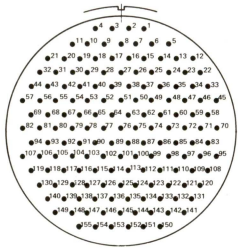

20-11

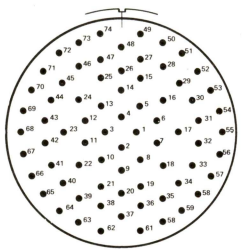

22-121

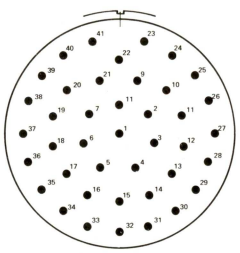

22-61

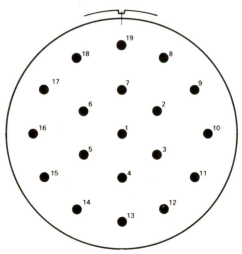

22-32


22-14

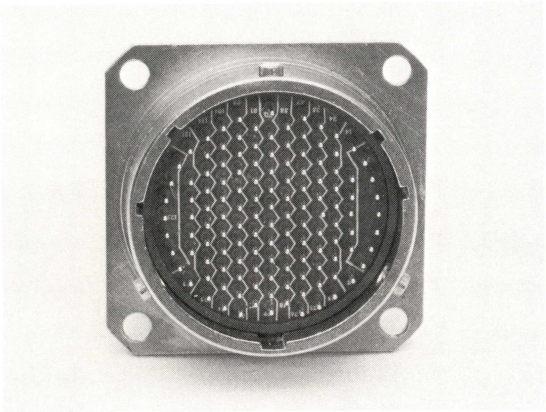

24-155


24-74


24-41


24-19

Deutsch High-Density
DJL Series Hermetic Connectors



Bringing to you the utmost advanced design for a hermetic connector is Deutsch's DJL series designed to Air Force Specification MIL-C-0038999. The DJL is a new generation of connector types which provide high density configurations in a small, compact yet highly reliable design. Available in several mounting styles and various insert arrangements, the DJL can also be obtained with a new lightweight shell that provides for a significant weight reduction. This results in excellent adaptability for aerospace applications.

Available in either crimp or solder terminating styles, the DJL series offers the highest technological advances in hermetic design. The crimp style design utilizes the advanced design plastic retention for a significant weight reduction.

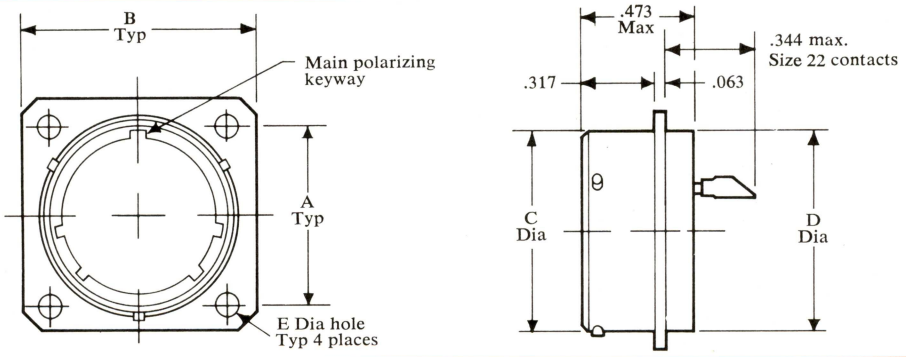
ORDERING INFORMATION

DJL 16 E 18 35 P N ****

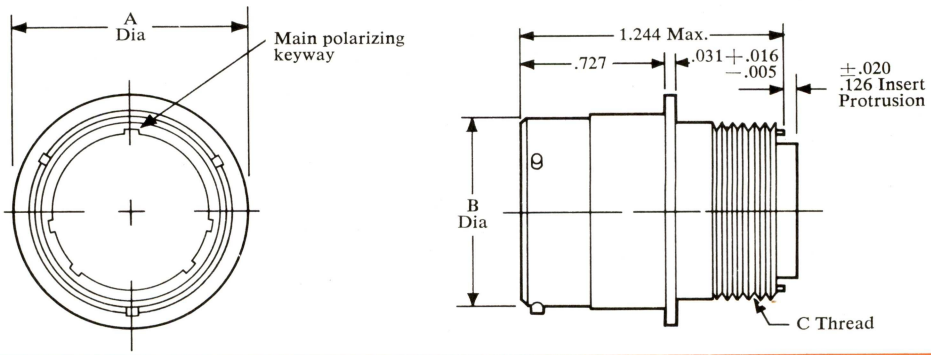
- **DJL** — Basic Identifier, DJL Series
- **16** — Shell Style
  - 11 Solder Mount Receptacle (Hermetic)
  - 10 Square Flange Receptacle (Hermetic)
- **E** — Class
  - B – Hermetic – Solder Contact – Stainless
  - H – Hermetic – Solder Contact – High Carbon Steel
  - L – Hermetic – Crimp Contact – High Carbon Steel
  - M – Hermetic – Crimp Contact – Stainless
- **18** — Shell Size
  - DJL 08, 10, 12, 14, 16, 18 20, 22, 24
- **35** — Insert Arrangement
- **P** — Contacts
  - P – Pin
- **N** — Shell Keying Position
  - N, A, B, C, D
- ******** — Modification

SHELL STYLES

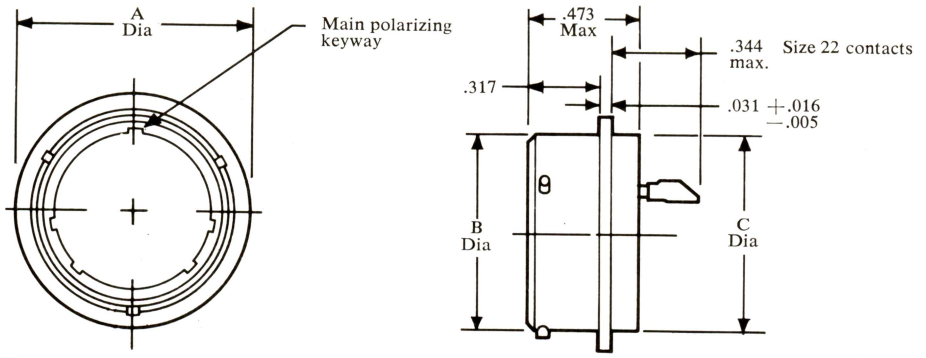
Square Flange Mount
Solder Type Termination



Solder Flange Mount
Crimp Type Termination



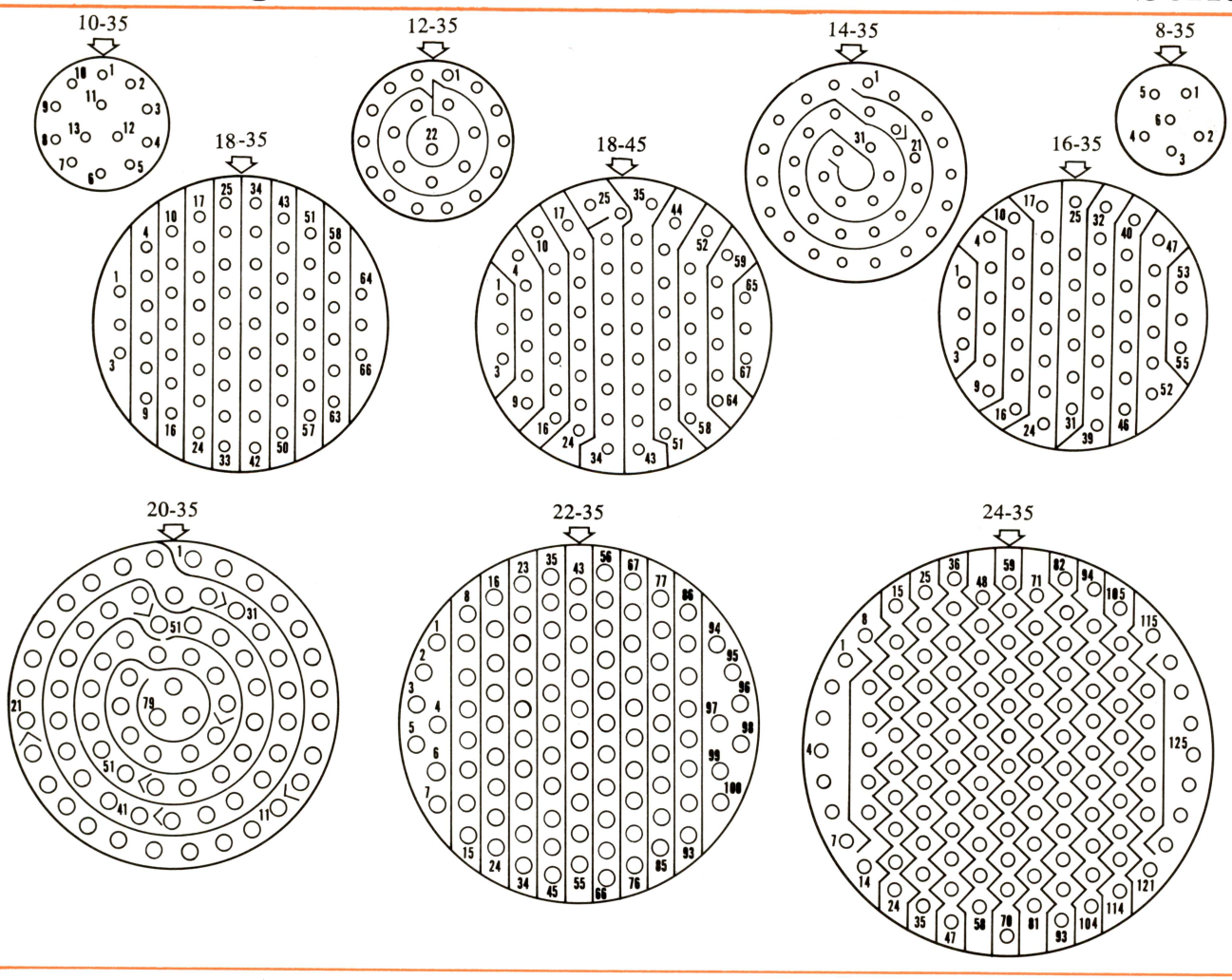
Solder Flange Mount
Solder Type Termination



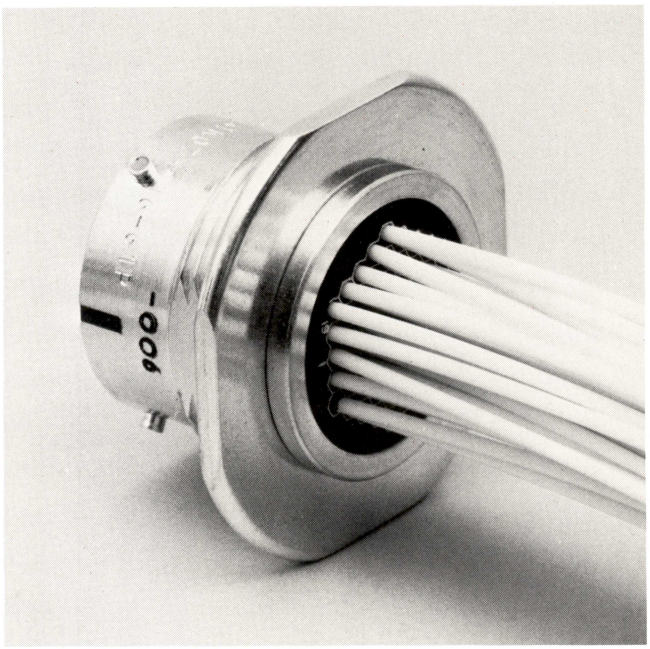
Shell Size	A ±.003	B Max.	C Dia ±.003	D Dia ±.003	E Dia +.010 −.005	F Dia ±.003	G Dia +.011 −.010	H Dia ±.003	J Thread UNEF-2A
8	.594	.828	.471	.560	.120	.560	.687	.471	7/16-28
10	.719	.954	.588	.670	.120	.670	.797	.588	9/16-24
12	.812	1.047	.748	.779	.120	.779	.906	.748	11/16-24
14	.906	1.141	.873	.904	.120	.904	1.031	.873	13/16-20
16	.969	1.234	.999	1.029	.120	1.029	1.156	.999	15/16-20
18	1.062	1.328	1.124	1.154	.120	1.154	1.281	1.124	1-1/16-18
20	1.156	1.453	1.249	1.248	.120	1.248	1.375	1.249	1-3/16-18
22	1.250	1.578	1.374	1.373	.120	1.373	1.500	1.374	1-5/16-18
24	1.375	1.703	1.499	1.498	.147	1.498	1.625	1.499	1-7/16-18

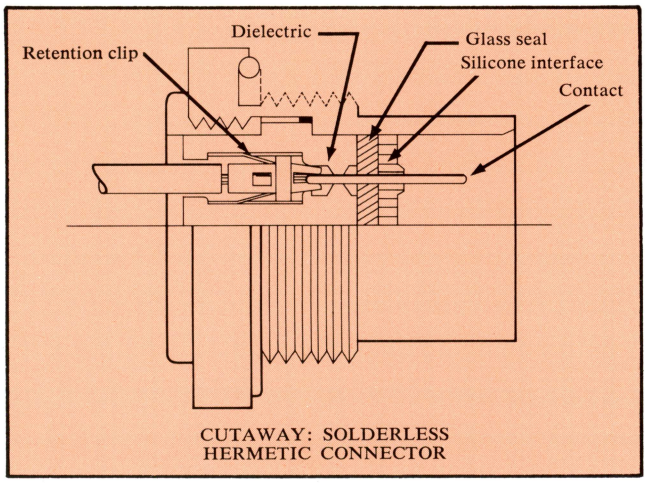
Insert Arrangements

Deutsch DJL Series



Deutsch Rear-Release High-Density Crimp Type Hermetics





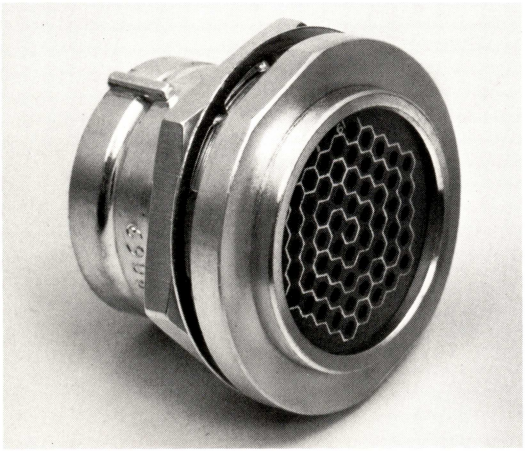
CUTAWAY: SOLDERLESS HERMETIC CONNECTOR

Featuring all the technological advantages of the Deutsch compression glass-seal, the RSM5130 and RTK31H series are terminated by rear insertion/rear removal solderless crimp-type contacts. This state-of-the-art feature has several advantages over the older solder type terminations. Removable contacts allow individual circuitry changing without affecting the integrity of other circuits. Circuits may be added or remove without changing connectors. Such versatility saves time and money! Because the contacts can be removed without changing connectors. Such versatility worry about, each termination can be easily inspected. And since the reliability of each termination is controlled by one fail-safe insertion/removal tool, instead of the operator, failure is less likely to occur. Another benefit of the solderless contact system is that operator certification is eliminated. This means that money and time spent for the periodic certification of solder technicians is no longer necessary.

The RSM5130 series hermetic is a high-density connector with push-pull coupling. Mating with the standard RSM high density plug, the Deutsch RSM5130 series features quick and easy disconnect in a subminiature configuration.

The RTK31H series is a high-density bayonet lock hermetic and a rugged, reliable connector. Both the RSM and RTK come in several mounting styles and shell sizes.

Deutsch High-Density
RSM 5130 Series
Push-Pull Crimp Type Connectors



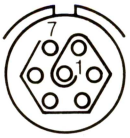
The Deutsch RSM5130 series hermetic is one answer to high-density applications. Featuring crimp-type contacts which can be inserted and removed with one plastic fail-safe insertion/removal tool, this push-pull coupling hermetic is a versatile and reliable connector. Available in square flange and solder mount styles, the RSM5130 series is the right connector for your high-density applications that need a quick disconnect feature.

ORDERING INFORMATION

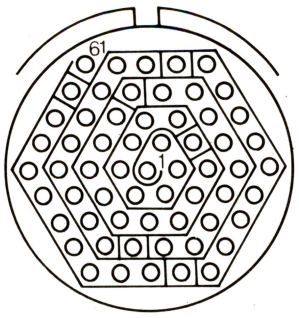
RSM513 0 - 19 - 33 P N XXXX

- XXXX — Special modification
- N — Clocking position
- P — DenotesDenotes Pins (P) or Sockets (S)
- 19 - 33 — Denotes contact configuration
- 0 — Shell Size (see drawing #73500 in this section for available contact and insert arrangements)
- RSM513 — Identifies a Deutsch solderless subminiature hermetic push-pull coupling/connector
  - 0 — receptacle — solder type
  - 5 — receptacle — single hole mount
  - 6 — receptacle — square flange

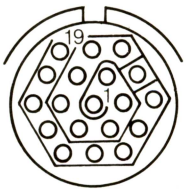
Insert Arrangements



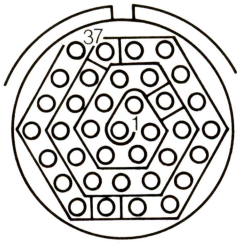
3-9



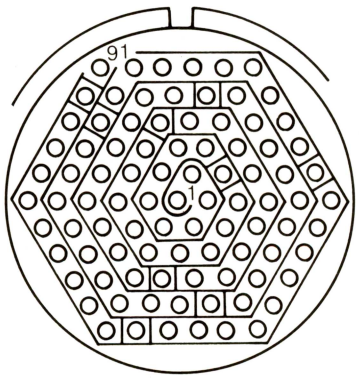
19-33



7-15

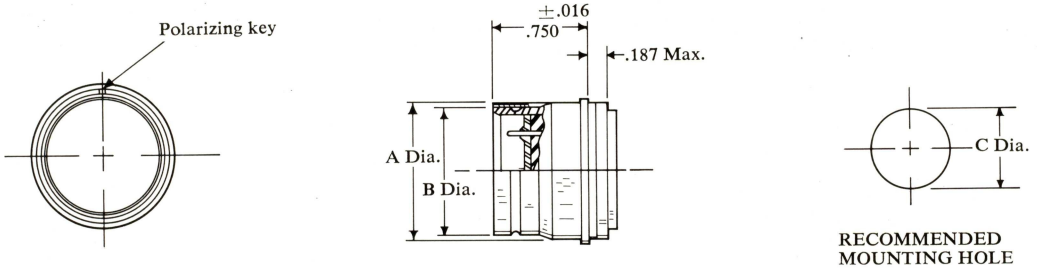


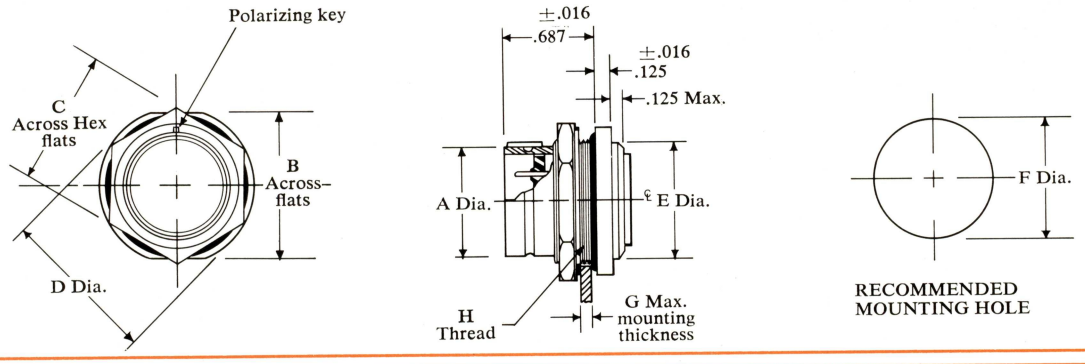
12-14

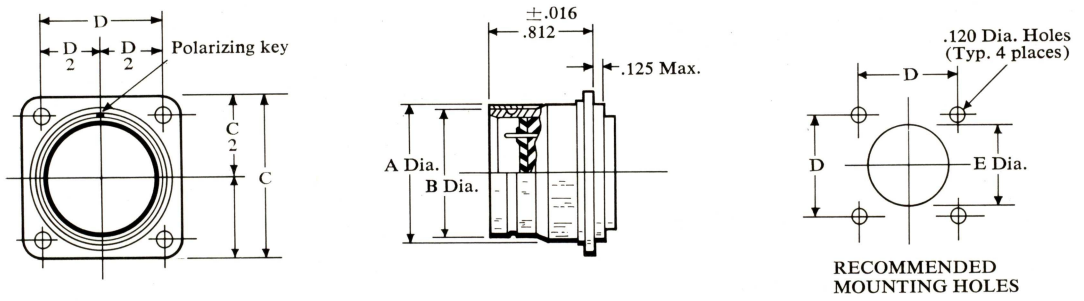


27-30

Shell Styles
Deutsch RSM 5130 Series

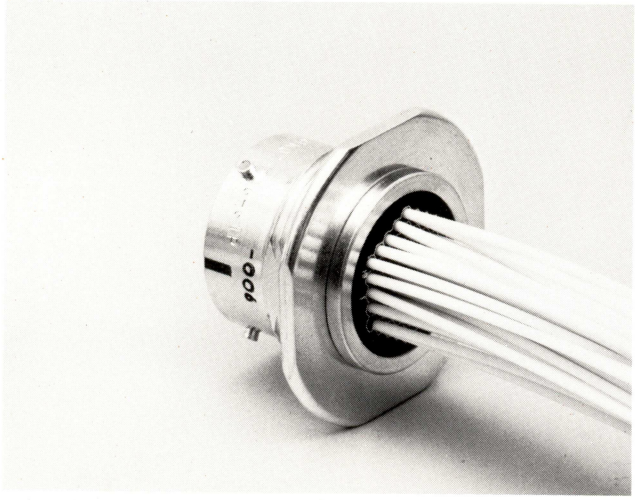






Shell Size	A ±.009	B ±.004	C +.010 −.000	E ±.016	F ±.016	G ±.016	H ±.016	J +.010 −.000	K	M Thread	N ±.016	P ±.005	Q +.010 −.000
3	.497	.435	.507	.727	.625	.765	.498	.572	.125	9/16 - 24 UNEF	.875	.625	.507
7	.622	.570	.632	.852	.813	.890	.623	.697	.125	11/16 - 24 UNEF	1.000	.719	.632
12	.747	.705	.757	.977	.938	1.015	.748	.822	.125	13/16 - 20 UNEF	1.093	.812	.757
19	.904	.844	.914	1.165	1.063	1.203	.905	1.010	.125	1 - 20 UNEF	1.187	.906	.914
27	1.060	1.000	1.070	1.290	1.250	1.328	1.061	1.135	.125	1-1/8 - 18 UNEF	1.281	.968	1.070

Deutsch High Density
RTK 31H Series
Bayonet Locking Hermetics



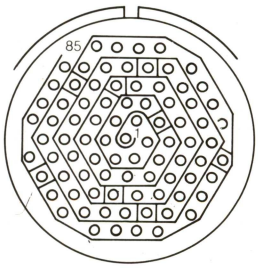
This bayonet-locking hermetic subminiature is a rugged and dependable series for high density applications. With insertable/removable crimp-type contacts, this connector is right for many hermetic applications. Available in several mounting and shell styles, this connector should be prescribed for all of your subminiature applications where ruggedness is of prime importance.

ORDERING INFORMATION

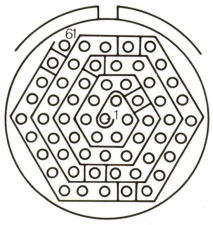
RTK 31H — 16 — 61 P W XXXX

- XXXX — Special modification
- W — Clocking position
- P — Denotes Pins(P)
- 61 — Denotes contact configuration
- 16 — Shell Size
- 31H — Describes the RTK shell style
  - 31H — Solder mount
  - 32H — Square flange receptacle
  - 37H — Single single hole receptacle
- RTK — Identifies Deutsch subminiature hermetic connector with crimp type contacts.

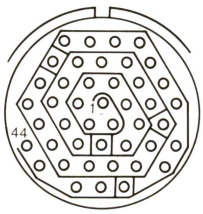
Insert Arrangements



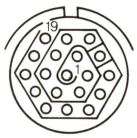
18-85



16-61



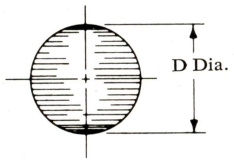
14-44



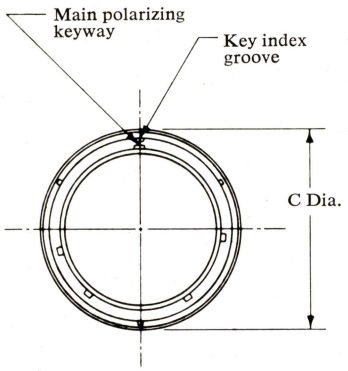
10-19

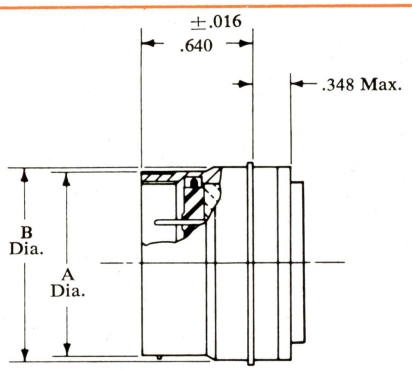
8-7

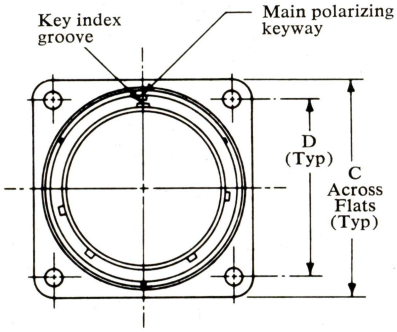
Shell Styles
Deutsch RTK 31H Series

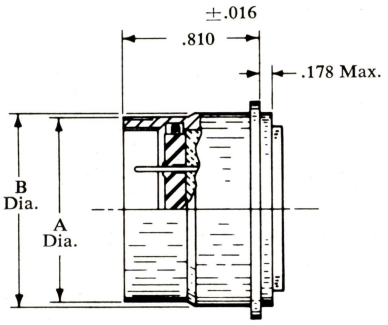


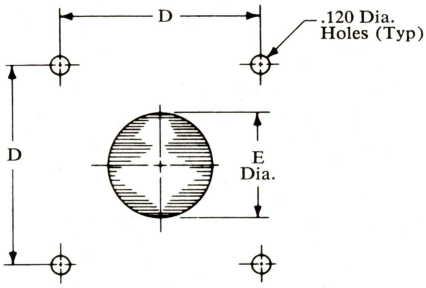
RECOMMENDED MOUNTING HOLE



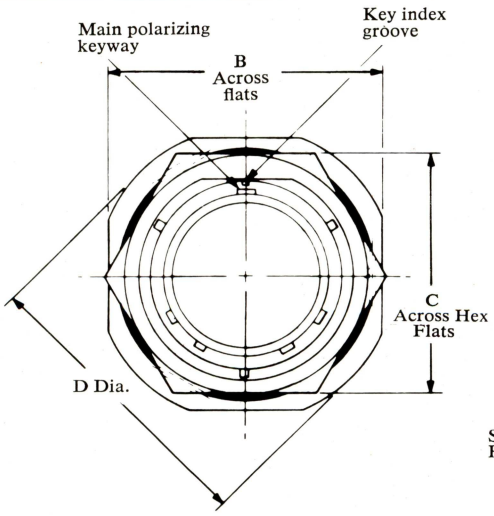


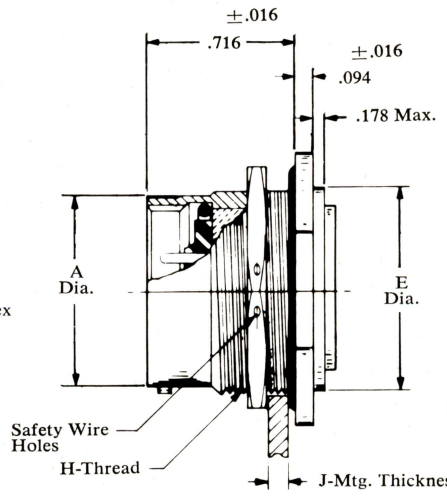


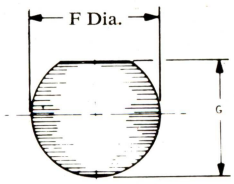




RECOMMENDED MOUNTING HOLES



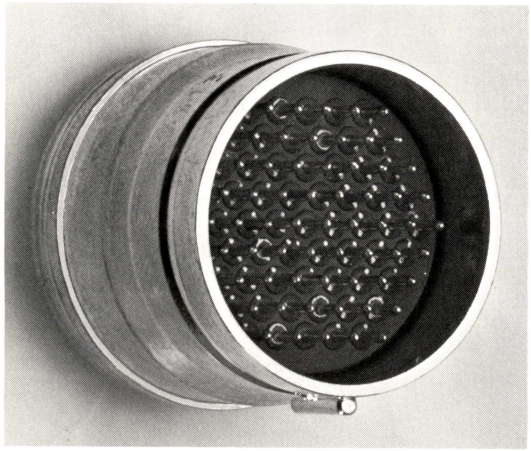




RECOMMENDED MOUNTING HOLE

Shell Size	A +.001 −.005	B ±.016	C ±.016	D +.010 −.000	E ±.016	F ±.016	G ±.016	H ±.016	J Max.	K ±.016	M +.010 −.000	N +.010 −.000	O Thread	P Min.	Q Max.
8	.473	.562	.622	.572	.812	.594	9.38	.750	1.078	.562	.572	.542	9/16-24UNEF	.062	.125
10	.590	.672	.749	.682	.9375	.719	1.062	.875	1.203	.672	.697	.669	11/16-24UNEF	.062	.125
14	.875	.906	.926	.916	1.125	.906	1.375	1.188	1.516	.906	1.003	.955	1-20UNEF	.062	.125
16	1.000	1.031	1.050	1.041	1.2188	.969	1.500	1.312	1.041	1.031	1.134	1.084	1-1/8-18UNEF	.062	1.25
18	1.125	1.156	1.176	1.166	1.312	1.062	1.625	1.438	1.166	1.156	1.259	1.208	1-1/4-18UNEF	.062	.125

Deutsch RSM 5150 Series
Hermetic Push-Pull Connectors



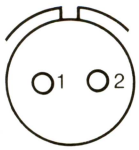
Featuring the Deutsch exclusive push-pull coupling style, the RSM5150 Series was designed for sealing and environmental applications where weight, space and multiple conductor circuitry are prime factors. Equipped with superior silicone interfaces, these new subminiature seals thrive on punishment and are available in several mounting styles and many contact configurations.

ORDERING INFORMATION

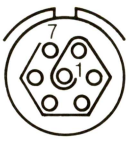
RSM **5150** - **19 - 33** **P** **W** - **XXX**

- **XXX** — Modification
- **W** — Clocking position
- **P** — Denotes (P) in or (S) socket contacts
- **19 - 33** — Shell size and insert arrangement
- **5150** — Denotes the RSM Series shell style
  - 5150 – Solder Mounting
  - 5155 – Jam Nut Mounting
  - 5156 – Square Flange Mounting
- **RSM** — Identifies a Deutsch subminiature hermetic receptacle with Push-Pull Coupling mechanism with raised barrier seals on pin fronts to mate with Deutsch RSM Series plugs. 3600 identifies special RSM Series connectors (RSM prefix not used).

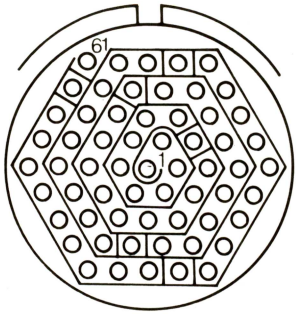
Insert Arrangements



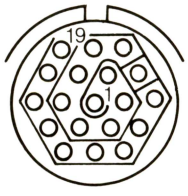
3-12



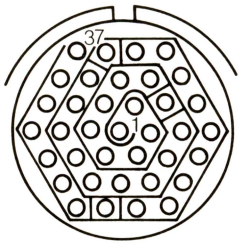
3-9



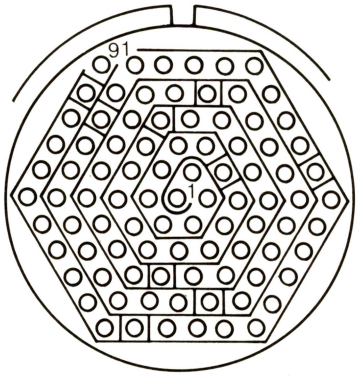
19-33



7-15



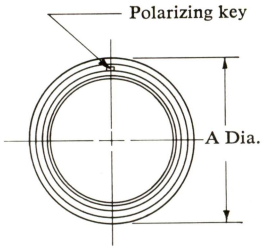
12-14

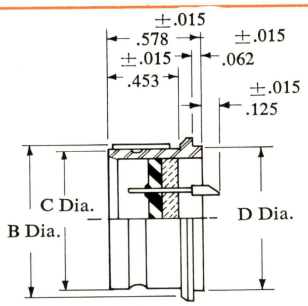


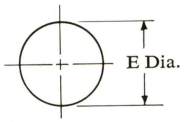
27-30

Shell Styles
Deutsch RSM 5150 Series

SOLDER MOUNT

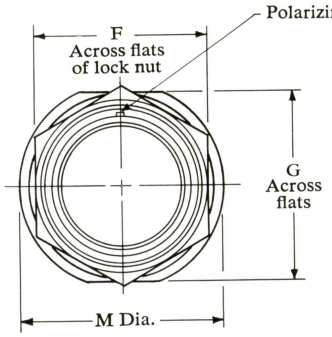


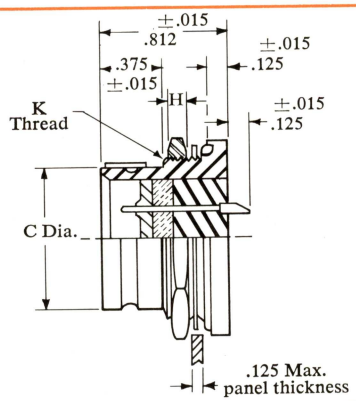


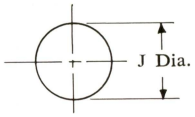


RECOMMENDED
PANEL MOUNTING HOLE

SINGLE HOLE MOUNT

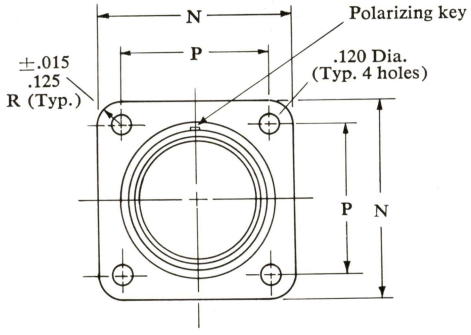


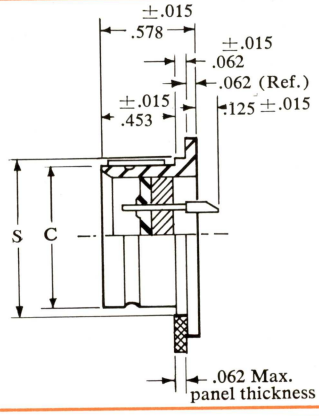


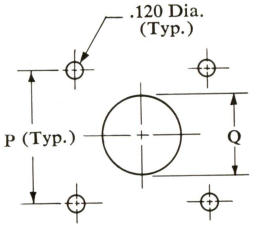


RECOMMENDED
PANEL MOUNTING HOLE

SQUARE FLANGE MOUNT



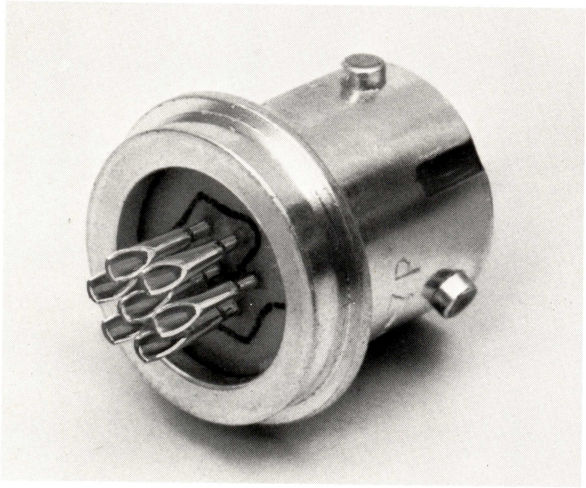




RECOMMENDED
PANEL MOUNTING HOLES

Shell Size	A ±.015	B ±.015	C ±.004	D +.000 −.004	E +.010 −.000	F ±.015	G ±.015	H ±.015	J +.010 −.000	K Thread	M	N ±.015	P ±.005	Q +.010 −.000	S ±.009
3	.593	.531	.435	.500	.510	.625	.718	.093	.572	9/16 - 24NEF	.765	.875	.625	.541	.531
7	.750	.687	.570	.625	.635	.812	.843	.125	.667	11/16 - 24NEF	.890	1.000	.719	.681	.671
12	.875	.812	.705	.749	.759	.937	.968	.125	.822	13/16 - 20UNEF	1.015	1.093	.812	.822	.812
19	1.000	.937	.844	.875	.885	1.062	1.156	.125	1.010	1 - 20UNEF	1.203	1.187	.906	.947	.937
27	1.187	1.125	1.000	1.062	1.072	1.250	1.281	.125	1.135	1/18 - 18NEF	1.328	1.281	.968	1.135	1.125

Deutsch RTK 57H Series
Bayonet Coupling Hermetic



These advanced Deutsch subminiatures with bayonet coupling mechanism provide a rugged high-density device for high reliability applications. The Deutsch RTK series meets or exceeds all applicable portions of MIL-C-81511 and comes in five MS shell sizes. The unique Deutsch hermetic seal provides continuous dielectric separation. High potential minimum flashover is almost double that of individually insulated contacts.

ORDERING INFORMATION

RTK — Identifies Deutsch Subminiature Hermetic Receptacle with Bayonet Lock Coupling.

57H — Denotes the RTK Series connector model (Solder type contacts)
51H – Solder Mounting
57H – Jam Nut Mounting
52H – Square Flange Mounting
47000 – Identifies special RTK Series connectors (RTK prefix not used)

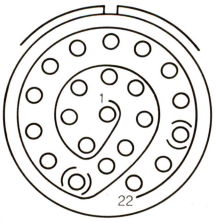
-16-61 — Shell size & insert arrangement.

P — Denotes (P) pin or (S) socket contacts.

W — Clocking position

XXXX — Modification

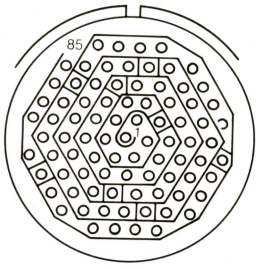
Insert Arrangements



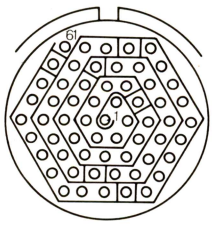
16-22

8-20

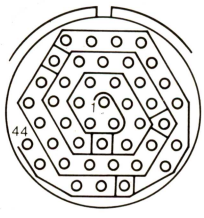
8-7



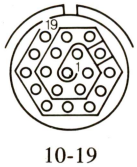
18-85



16-61

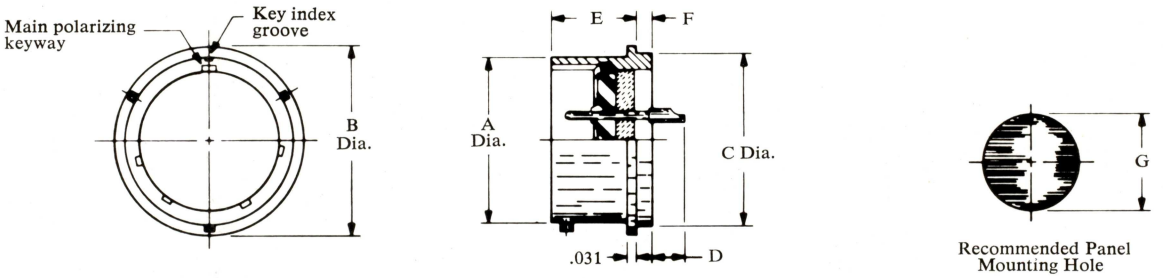


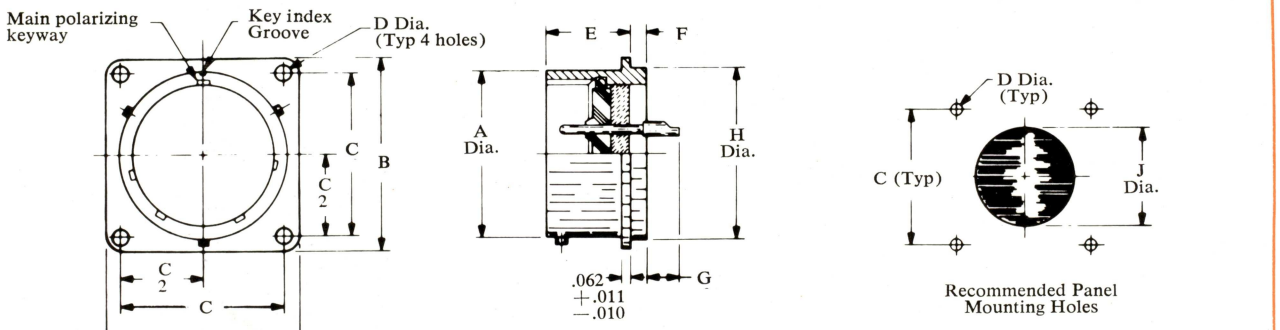
14-44

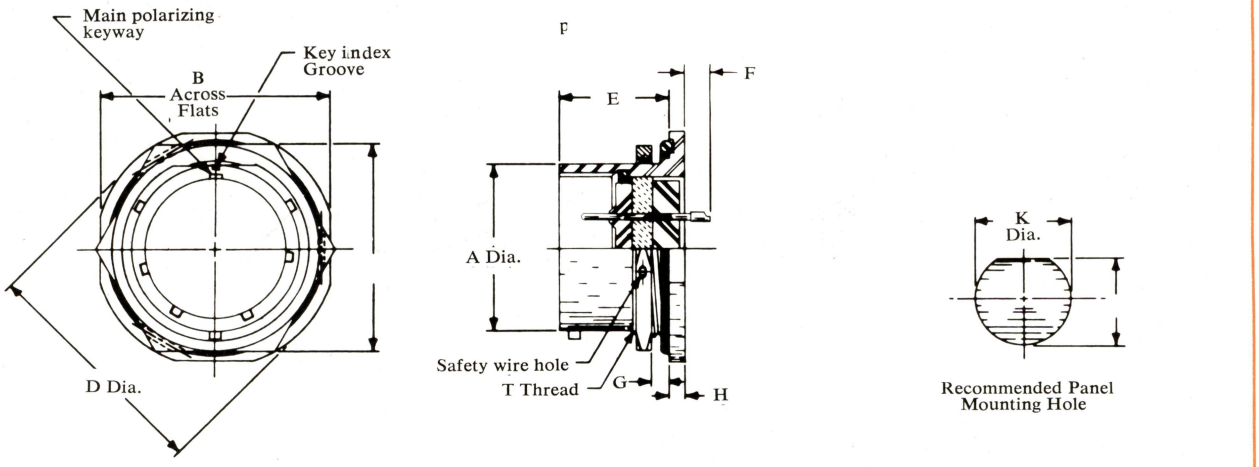


10-19

Shell Styles
Deutsch RTK 57H Hermetic



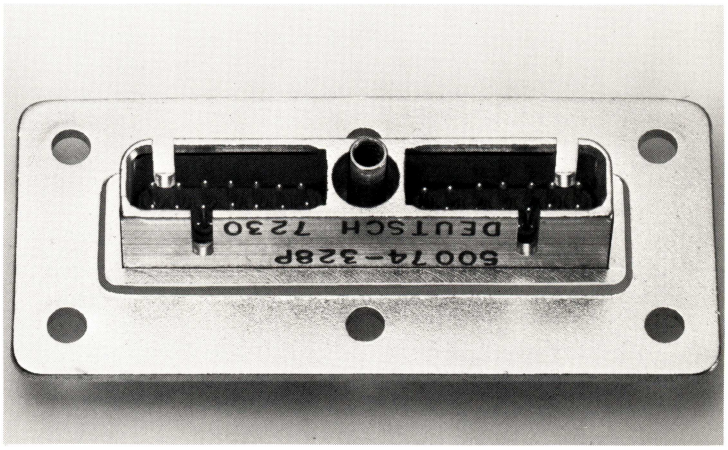




Shell Size	A +.001 −.005	B Max.	C +.001 −.005	D ±.015	E +.020 −.010	F ±.010	G +.010 −.000	H ±.016	J	K	M ±.016	N ±.016	Q Max.	P +.031 −.000	Q ±.015	R Panel Thk. Min.	R Panel Thk. Max.	S ±.015	T Thread	U +.010 −.000	W +.000 −.010
8	.473	.635	.562	.187	.447	.094	.572	.812	.594	.120	.938	.750	1.078	.691	.177	.062	.125	.094	9/16 - 24NEF	.572	.542
10	.590	.760	.672	.187	.447	.094	.682	.938	.719	.120	1.062	.875	1.203	.691	.177	.062	.125	.094	11/16 - 24NEF	.697	.669
14	.875	.975	.906	.187	.447	.094	.916	1.125	.906	.120	1.375	1.188	1.516	.691	.177	.062	.125	.094	1 - 20UNEF	1.007	.955
16	1.000	1.104	1.031	.187	.447	.094	1.041	1.219	.969	.120	1.500	1.312	1.641	.691	.177	.062	.125	.094	1-1/8 - 18NEF	1.134	1.084
18	1.125	1.228	1.156	.187	.447	.094	1.166	1.312	1.062	.120	1.625	1.438	1.766	.691	.177	.062	.125	.094	1-1/4 - 18NEF	1.259	1.208

Deutsch High-Density 50000 Series Rectangular Hermetic Connectors with Jackscrew Coupling

Providing the ultimate in high-density packaging, the Deutsch 50000 Series rectangulars have the same high performance capabilities as the RSM and RTK series. Available in many shell sizes and insert arrangements, these rectangulars mate with Deutsch RE and RM series plugs . . . a mating positively obtained through the use of specially designed jackscrew coupling mechanism.

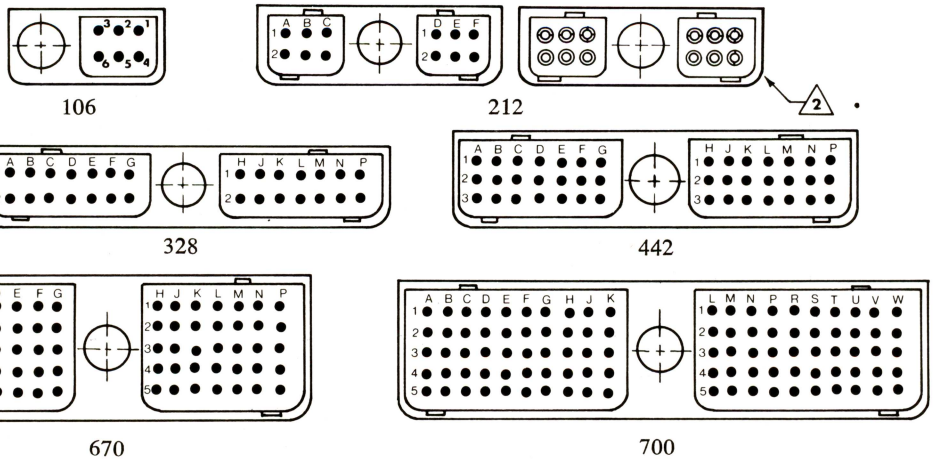


ORDERING INFORMATION

5000 6 - 4 - 700 P XXXX

- Modification
- Denotes pin contacts
- Shell, size and insert arrangement.
- Jack-screw mating.
- Denotes shell style
  6 – Solder Mounting
  7 – Flange Mounting
  8 – Weld Mounting
- Identifies a Deutsch Subminiature Rectangular Connector with Jack-screw Coupling Mechanism Designed to mate with the Deutsch RE and RM Series.

INSERT ARRANGEMENTS

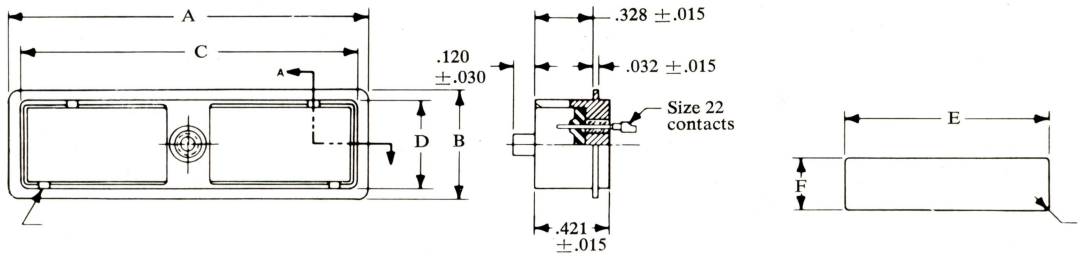


△2 *Pin front inserts are identified by the "broken line method," due to space limitation. (Example shown is for 212 arrangement only. Broken line sequences vary from arrangement to arrangement to facilitate most expedient wiring method.)*

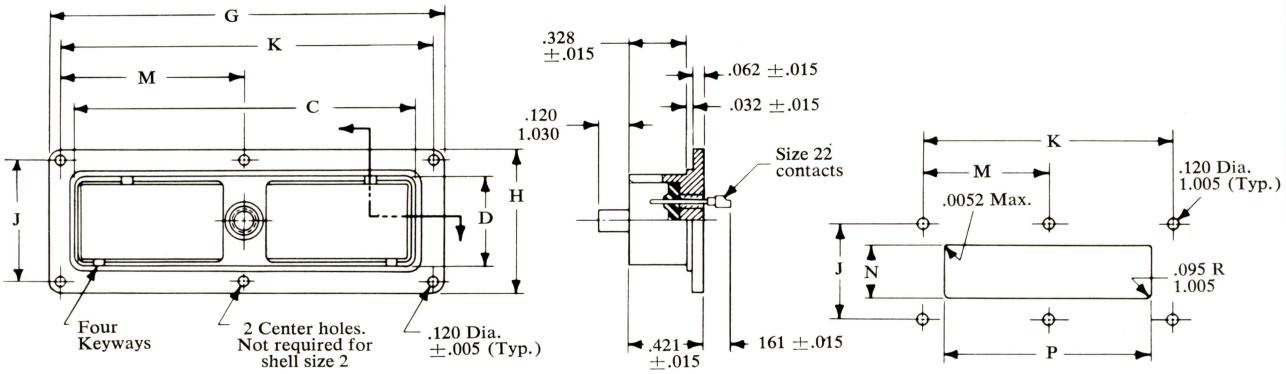
1. Markings shown are for rear of connector.

Shell Styles
Deutsch 50000 Series

SOLDER MOUNT RECEPTACLE



FLANGE MOUNT RECEPTACLE



Shell Size	No. of Cont's	A ±.015	B ±.015	C ±.015	D ±.015	E +.010 −.000	F +.010 −.000	G ±.015	H ±.015	J ±.005	K ±.005	M ±.0025	N +.010 −.000	P +.010 −.000
2	12	1.003	.404	.878	.279	.882	.283	1.578	.979	.629	1.228	–	.416	1.015
3	28	1.643	.404	1.518	.279	1.522	.283	2.218	.979	.629	1.868	.934	.416	1.655
4	42	1.643	.494	1.518	.359	1.522	.363	2.218	1.069	.719	1.868	.934	.496	1.655
6	70	1.643	.641	1.518	.516	1.522	.520	2.218	1.216	.866	1.868	.934	.653	1.655
7	100	2.123	.641	1.998	.516	2.002	.520	2.698	1.216	.866	2.348	1.174	.653	2.135

Deutsch High Performance Miniature Crimp-Terminated Hermetic Connectors

RBC70 SERIES — PUSH-PULL COUPLING
A complete line of glass-sealed miniature hermetics, the RBC70 series features crimp-type rear-release contacts and push-pull coupling. Qualified to MIL-C-81703, these reliable hermetics with silicone interfaces can be ordered to either military or Deutsch part numbers. The RBC70 series will mate with all Deutsch DBA77 series push-pull plugs, DBA79 rack and panel plugs, and MIL-C-81703 plugs.

RBC50 SERIES — BAYONET COUPLING
Crimp-type contacts which can be inserted and removed from the rear of the connector with one plastic tool are featured in this high-performance miniature. Mating with Deutsch DBA50, MIL-C-0026482 and MIL-C-83723 plugs, this hermetic will out-perform all existing types in reliability and ease of assembly. Additional savings in training and rework time help make this connector series a great boon to the market.

ORDERING INFORMATION

RBC 70 SERIES

RBC7 0H — 27 — 2 P N — XXXX

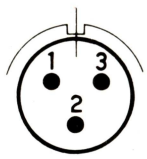
- RBC7 — Identifies miniature bayonet coupling, solderless hermetic connector series.
- 0H — Shell Style: 0H — Square flange (narrow); 3H — Solder mount; 4H — Single-hole mount
- 27 — Shell Size
- 2 — Insert Arrangement
- P — Pin Contacts
- N — Clocking Positions
- XXXX — Special Modifications

RBC 50 SERIES

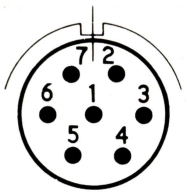
RBC5 0H — 22 — 55 P N — XXXX

- RBC5 — Identifies miniature push-pull coupling, solderless hermetic connector series.
- 0H — Shell Style: 0H — Square flange (narrow); 3H — Solder mount; 4H — Single-hole mount
- 22 — Shell Size
- 55 — Insert Arrangement
- P — Pin Contacts
- N — Clocking Positions
- XXXX — Special Modifications

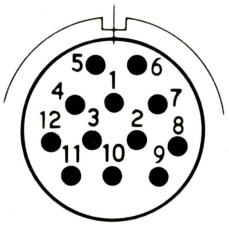
Insert Arrangements
Deutsch RBC 70H Series



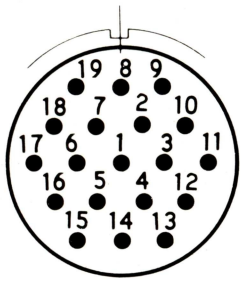
3-0



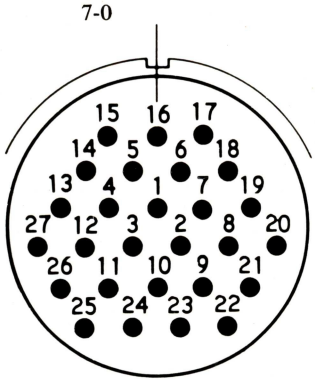
7-0



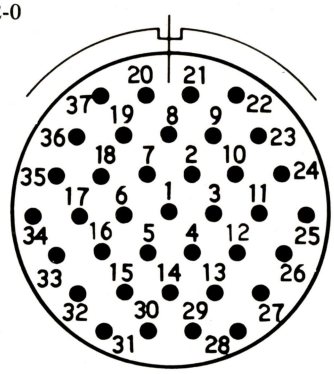
12-0



19-0

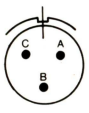


27-0

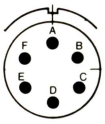


37-0

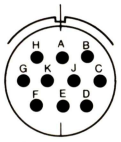
Insert Arrangements
Deutsch RBC 50H Series



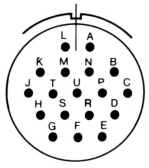
8-98



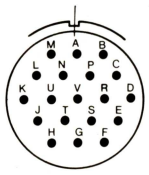
10-6



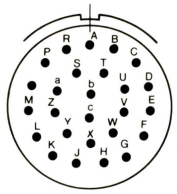
12-10



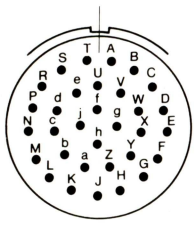
14-18



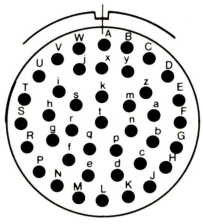
14-19



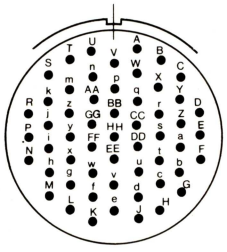
16-26



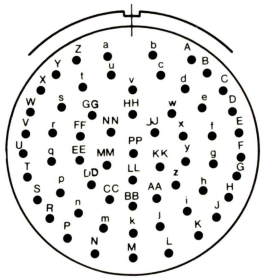
18-32



20-41



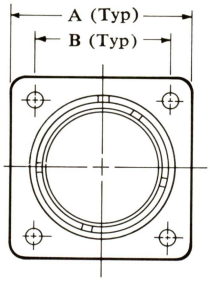
22-55

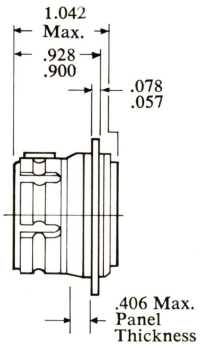


24-61

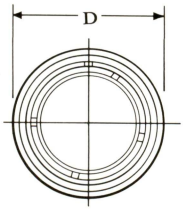
Shell Styles
Deutsch RBC 70H Series

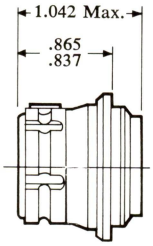
SQUARE FLANGE MOUNT RECEPTACLE

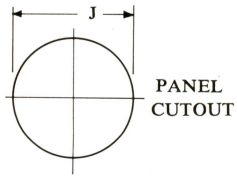




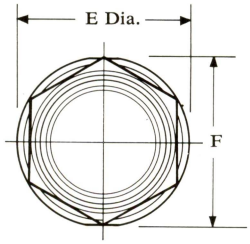
SOLDER MOUNT RECEPTACLE

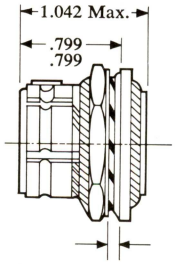


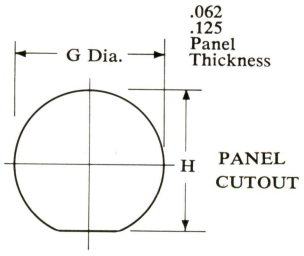




SINGLE HOLE MOUNT RECEPTACLE



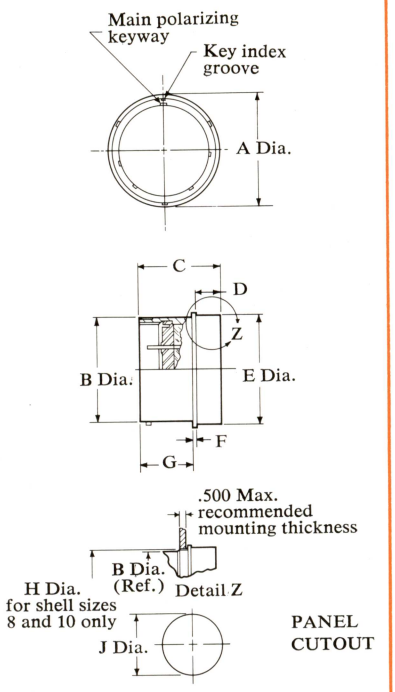




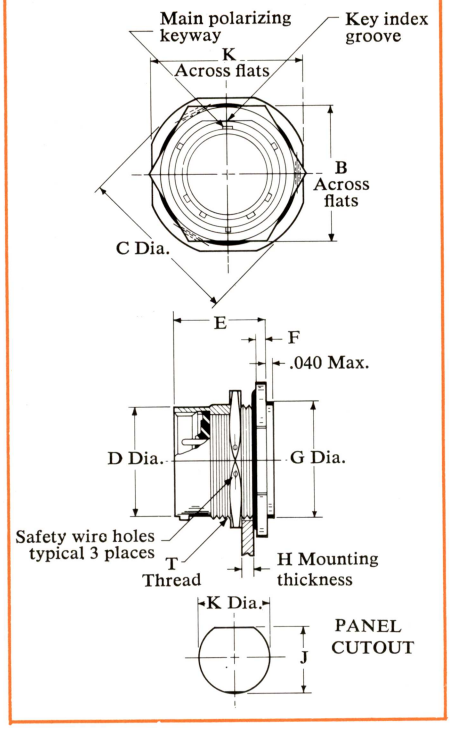
Shell Size	A Max	B ±.005	C ±.005	E	F	G	H	D	J ±.005
3	.891	.625	.555	.780 .750	.742 .712	.577 .567	.538 .534	.602 .582	.515
7	1.016	.719	.688	.905 .875	.867 .837	.701 .691	.665 .661	.760 .740	.640
12	1.109	.812	.828	1.030 1.000	.992 .962	.826 .816	.788 .784	.885 .865	.764
19	1.203	.906	.953	1.218 1.188	1.180 1.150	1.013 1.003	.973 .969	1.010 .990	.890
27	1.297	.968	1.136	1.343 1.313	1.305 1.275	1.138 1.128	1.099 1.095	1.192 1.172	1.077
37	1.453	1.187	1.234	1.467 1.437	1.430 1.400	1.263 1.253	1.224 1.220	1.291 1.271	1.171
61	1.797	1.436	—	1.910 1.880	1.874 1.844	1.514 1.504	1.471 1.467	1.572 1.562	1.453

Shell Styles
Deutsch RBC 50H Series

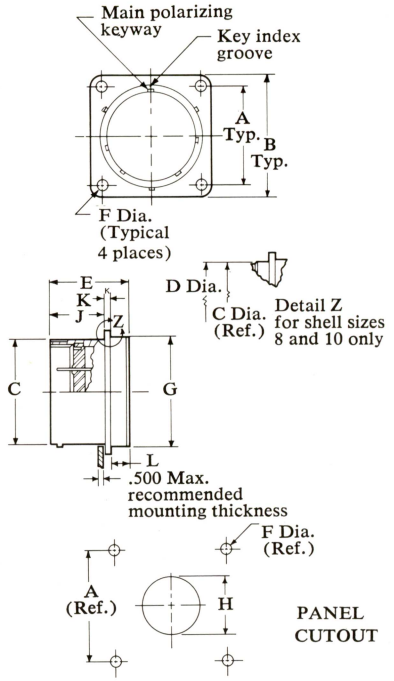
SOLDER MOUNT



SINGLE HOLE MOUNT



SQUARE FLANGE MOUNT

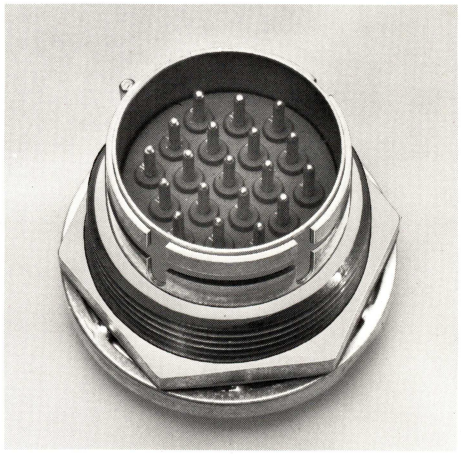


SHELL SIZE	A +.000 −.020	B +.001 −.005	C ±.016	D MAX.	E ±.010	F +.015 −.005	G REF.	H ±.016	J +.010 −.000	K ±.016	L ±.016	M MAX.	B ±.003	N ±.016	P ±.016
8	.635	.473	1.012	.314	.562	.031	.687	.490	.573	.938	.750	1.078	.471	.982	.105
10	.760	.590	1.012	.314	.672	.031	.687	.624	.683	1.062	.875	1.203	.588	.982	.105
12	.854	.750	1.012	.314	.781	.031	.687	–	.792	1.250	1.062	1.391	.748	.982	.105
14	.979	.875	1.012	.314	.906	.031	.687	–	1.007	1.375	1.188	1.516	.873	.982	.105
16	1.104	1.000	1.012	.314	1.031	.031	.687	–	1.042	1.500	1.312	1.641	.998	.982	.105
18	1.228	1.125	1.012	.314	1.156	.031	.687	–	1.167	1.625	1.438	1.766	1.123	.982	.105
20	1.322	1.250	1.074	.314	1.250	.031	.749	–	1.261	1.812	1.562	1.959	1.248	1.044	.138
22	1.448	1.375	1.074	.314	1.375	.031	.749	–	1.386	1.938	1.688	2.078	1.373	1.044	.138
24	1.574	1.500	1.074	.314	1.500	.031	.749	–	1.511	2.062	1.812	2.203	1.497	1.044	.138

R ±.016	S MIN.	S MAX.	T +.010 −.000	U +.010 −.000	CC THREAD UNEF	V ±.005	W MAX.	H ±.016	C ±.016	BB ±.005 DIA.	R ±.016	J +.010 −.000	Y REF.	X ±.016	AA MAX.
.562	.062	.375	.535	.572	9/16-24	.594	.826	.490	1.012	.120	.562	.572	.692	.062	.278
.672	.062	.375	.660	.697	11/16-24	.719	.954	.624	1.012	.120	.672	.682	.692	.062	.278
.781	.062	.375	.823	.884	7/8-20	.812	1.047	–	1.012	.120	.781	.791	.692	.062	.278
.906	.062	.375	.947	1.007	1-20	.906	1.141	–	1.012	.120	.906	.916	.692	.062	.278
1.031	.062	.375	1.071	1.134	1 1/8-18	.969	1.234	–	1.012	.120	1.031	1.041	.692	.062	.278
1.156	.062	.375	1.196	1.259	1 1/4-18	1.062	1.328	–	1.012	.120	1.156	1.166	.692	.062	.278
1.250	.062	.375	1.321	1.384	1 3/8-18	1.156	1.453	–	1.074	.120	1.250	1.260	.749	.093	.252
1.375	.062	.375	1.446	1.507	1 1/2-18	1.250	1.578	–	1.074	.120	1.375	1.385	.749	.093	.252
1.500	.062	.375	1.571	1.634	1 5/8-18	1.375	1.703	–	1.074	.147	1.500	1.510	.749	.093	.252

Deutsch DBC 70H Series Miniature Hermetic Connector with Push-Pull Coupling

Qualified to MIL-C-81703, these push-pull coupling hermetics offer the best in connector technology. Precision made, this hermetic will mate with DBA70 and MIL-C-81703 plugs. The push-pull coupling for quick disconnect, silicone interface for extra moisture sealing and special Deutsch glass seal make this connector type one of the best available.



ORDERING INFORMATION

Military Part Numbering System

MS 34 24 H 19 — 7 P W

- MS 34 — Military Designation
- 24 — Shell Style
  - 24 - Square Flange Mount Receptacle
  - 64 - Single Hole Mount Receptacle
- H — Class
  - H = Hermetic, 200°
- 19 — Shell Size
- 7 — Insert Arrangement
- P — Contact Style
  - P = Pin
  - S = Socket
- W — Clocking Positions

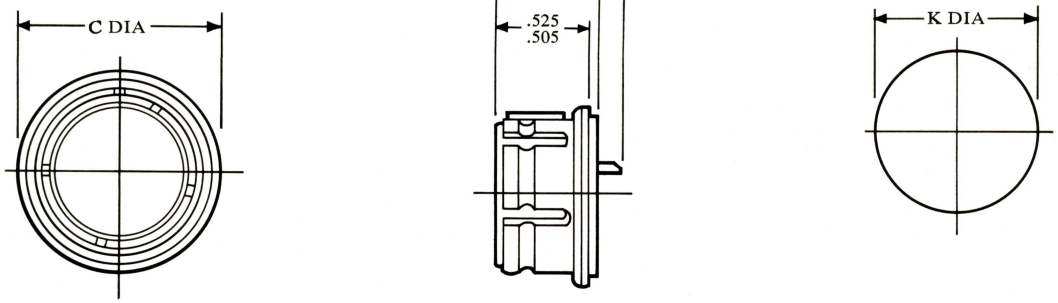
Deutsch Part Numbering System

DBC7 0 H 19 — 7 P N

- DBC7 — Deutsch Miniature Connector with Push-Pull Coupling.
- 0 — Shell Style
  - 0 - Square Flange Mount Receptacle
  - 3 - Solder Mount Receptacle
  - 4 - Single Hole Mount Receptacle
- H — Class
  - H = Hermetic 200°
- 19 — Shell Size
- 7 — Insert Arrangement
- P — Contact Style
- N — Clocking Position

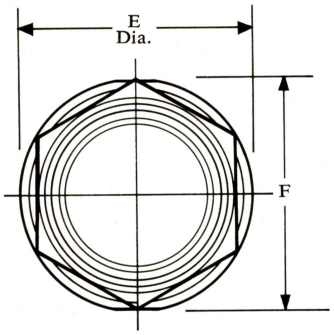
NOTE: (1) The "N" is Deutsch Part Number Denotes Normal Polarization.
(2) "N" is not used in the Military Part Numbering System to Denote Normal Polarization.

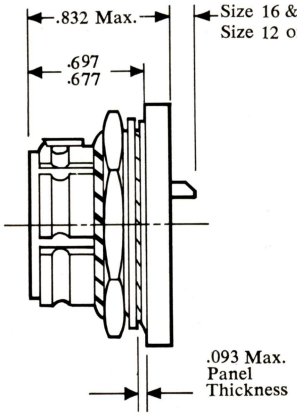
SOLDER MOUNT RECEPTACLE

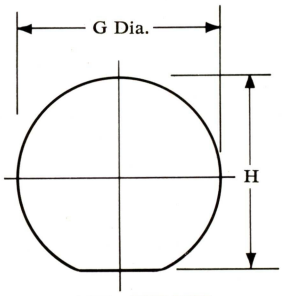


Shell Styles
Deutsch DBC 70H Series

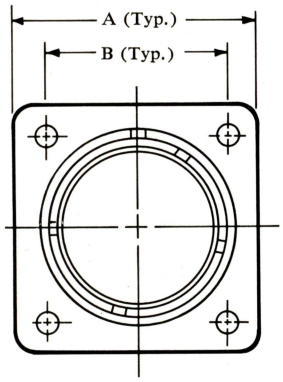
SINGLE HOLE MOUNT RECEPTACLE

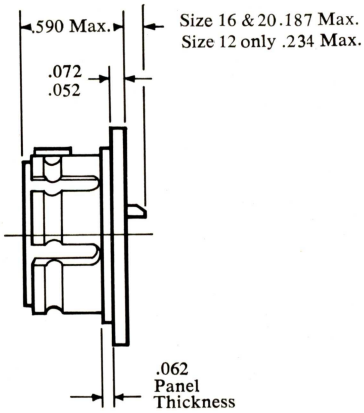






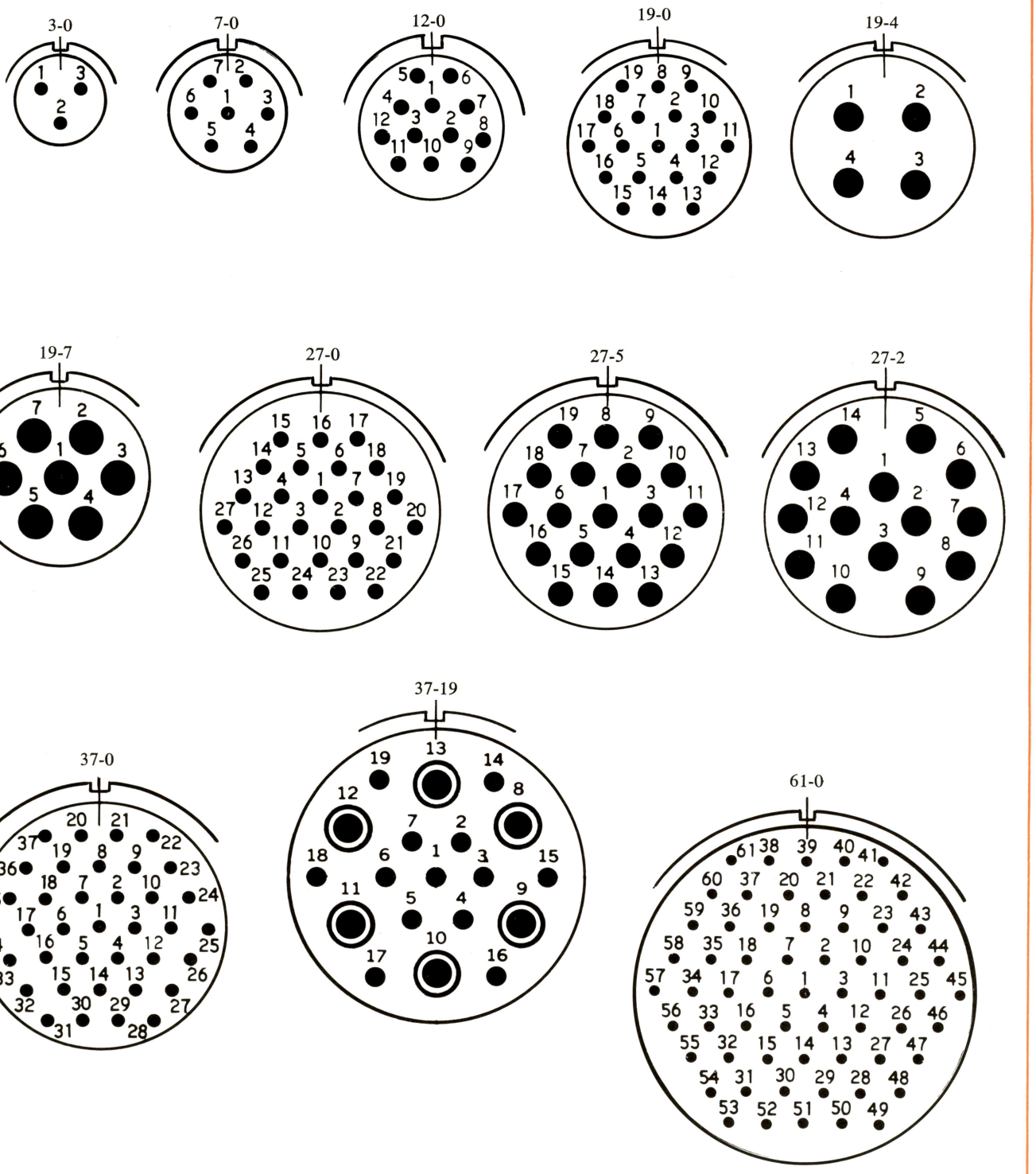
SQUARE FLANGE MOUNT RECEPTACLE



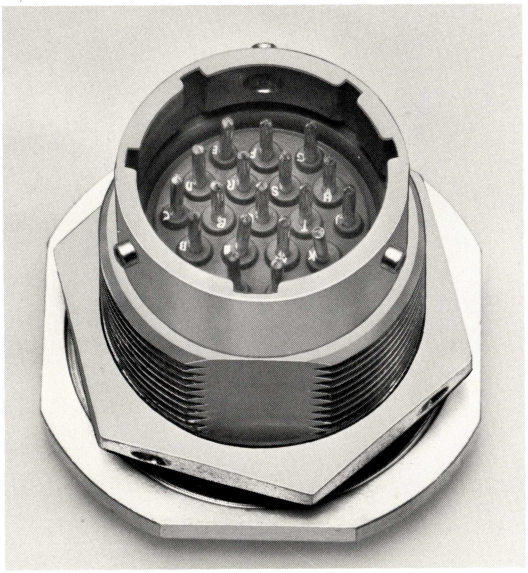


Shell Size	A Max.	B ±.005	C ±.005	E	F	G	H	D	K +.005
3	.891	.625	.555	.780 .750	.742 .712	.577 .567	.538 .534	.602 .582	.515
7	1.016	.719	.688	.905 .875	.867 .837	.701 .691	.665 .661	.760 .740	.640
12	1.109	.812	.828	1.030 1.000	.992 .962	.826 .816	.788 .784	.885 .865	.764
19	1.203	.906	.953	1.218 1.188	1.180 1.150	1.013 1.003	.973 .969	1.010 .990	.890
27	1.297	.968	1.136	1.343 1.313	1.305 1.275	1.138 1.128	1.099 1.095	1.192 1.172	1.077
37	1.453	1.187	1.234	1.467 1.437	1.430 1.400	1.263 1.253	1.224 1.220	1.291 1.271	1.171
61	1.797	1.436	–	1.910 1.880	1.874 1.844	1.514 1.504	1.471 1.467	1.572 1.562	1.453

Insert Arrangements
Deutsch DBC 70H Series



Deutsch DBC 50H Series
Miniature Bayonet Coupling Hermetic



The DBC50 series connector is qualified to the Air Force MIL-C-83723 series 1, and to Navy's MIL-C-0026482. Mateable with these Mil-Spec plugs, as well as standard Deutsch DBA56 plugs, the DBC50H is a versatile and well-constructed miniature hermetic. The Deutsch hermetic seal provides for high-reliability and performance. Available in square flange, solder mount, and single hole mount, these connectors are right for you.

Deutsch Part Numbering System

DBC — 50H — 22 — 55 — P — N

- DBC — Identifies Miniature Hermetic Connector with Bayonet Coupling
- 50H — Shell Style
  - 50H-Square Flange
  - 53H-Solder Mount
  - 54H-Single Hole Mount
  - 58H-Wide Sq. Flange
- 22 — Shell Size
- 55 — Insert Arrangements
- P — Pin Contacts
- N — Clocking Positions

Mil-C-83723 Part Numbering System

M83723 — 09 — H — 22 — 55 — N

- M83723 — Basic Military Designation
- 09 — Shell Style
  - 09-Square Flange
  - 10-Wide Square Flange
  - 11-Solder Mount
  - 12-Single Hole Mount
- H — Class H-Hermetic
- 22 — Shell Size
- 55 — Insert Arrangements
- N — Clocking Positions

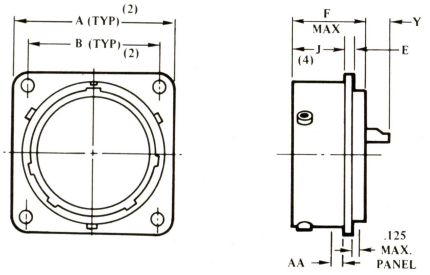
Mil-C-0026482 Part Numbering System

MS34 — 40 — H — 22 — 55 — P — W

- MS34 — Military Designation
- 40 — Shell Style
  - 40-Square Flange
  - 42-Wide Square Flange
  - 43-Solder Mount
  - 49 Single Hole Mount
- H — Class H-Hermetic
- 22 — Shell Size
- 55 — Insert Arrangement
- P — Contact Style
- W — Insert Positions

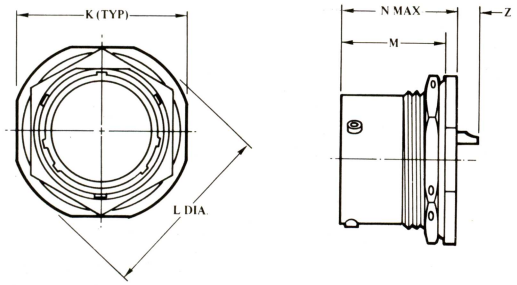
Shell Styles DBC 50H Series

SQUARE FLANGE MOUNT RECEPTACLE



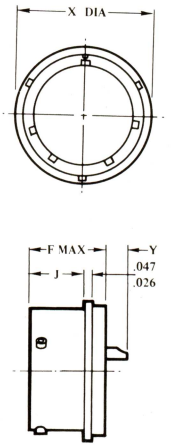
PANEL CUTOUT

SINGLE HOLE MOUNT RECEPTACLE



PANEL CUTOUT

SOLDER MOUNT RECEPTACLE

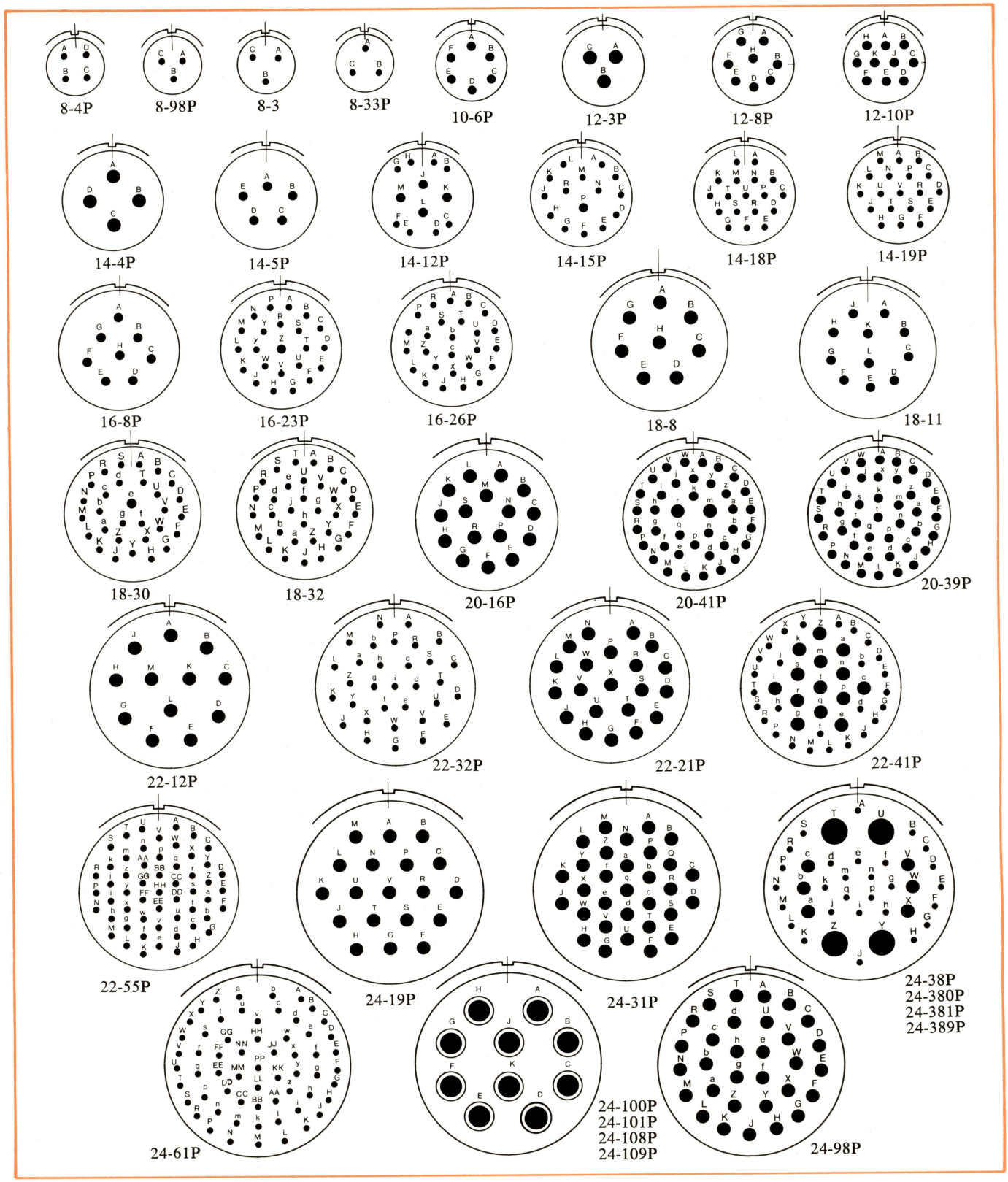


PANEL CUTOUT

Shell Size	AA Max. Panel N	AA Max. Panel W	BB Max. Panel	A Max[2] N	A Max[2] W	B ±.005[2] N	B ±.005[2] W	E	F Max	G ±.005	H	[4] J
8	.087	.118	.187	.828	1.065	.594	.734	.078 .046	.801	.120	.573 .563	.598 .578
10	.087	.118	.187	.954	1.141	.719	.812	.078 .046	.801	.120	.690 .680	.598 .578
12	.087	.118	.187	1.047	1.266	.812	.938	.078 .046	.801	.120	.869 .859	.598 .578
14	.087	.118	.187	1.141	1.360	.906	1.031	.078 .046	.801	.120	.994 .984	.598 .578
16	.087	.118	.187	1.234	1.453	.969	1.125	.078 .046	.801	.120	1.118 1.108	.598 .578
18	.087	.118	.187	1.328	1.532	1.062	1.203	.078 .046	.801	.120	1.243 1.233	.598 .578
20	.212	.212	.250	1.453	1.688	1.156	1.297	.110 .078	.863	.120	1.368 1.358	.660 .640
22	.212	.212	.250	1.578	1.766	1.250	1.375	.110 .078	.895	.120	1.493 1.483	.660 .640
24	.212	.212	.219	1.703	1.891	1.375	1.500	.110 .078	.895	.147	1.620 1.610	.660 .640

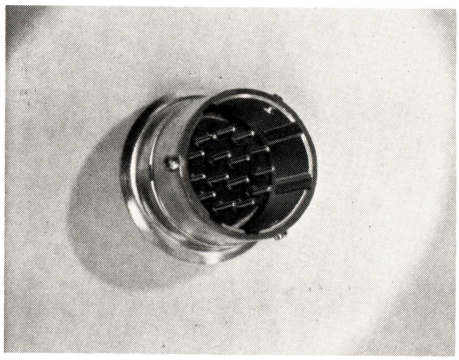
K	L	M	N MAX.	P ±.005	R ±.005	U ±.005	X	Y Contact Size 20	Y Contact Size 16 & 12	Z Contact Size 20	Z Contact Size 16 & 12
.954 .923	1.078 1.047	.707 .691	.820	.536	.572	.570	.635 .615	.178 .118	.248 .188	.134 .074	.204 .144
1.078 1.047	1.203 1.172	.707 .691	.820	.661	.697	.680	.760 .740	.178 .118	.248 .118	.134 .074	.204 .144
1.266 1.235	1.391 1.360	.707 .691	.820	.824	.895	.789	.854 .834	.178 .118	.248 .118	.134 .074	.204 .144
1.391 1.360	1.516 1.485	.707 .691	.820	.948	1.010	9.14	.979 .959	.178 .118	.248 .188	.134 .074	.204 .144
1.516 1.485	1.641 1.610	.707 .691	.820	1.072	1.135	1.039	1.104 1.084	.178 .118	.248 .188	.134 .074	.204 .144
1.641 1.610	1.766 1.735	.707 .691	.820	1.197	1.260	1.164	1.228 1.208	.178 .118	.248 .188	.134 .074	.204 .144
1.828 1.797	1.954 1.923	.772 .754	.920	1.322	1.385	1.258	1.322 1.302	.178 .118	.248 .188	.099 .039	.169 .109
1.954 1.923	2.078 2.047	.772 .754	.920	1.447	1.510	1.383	1.448 1.428	.146 .086	.216 .156	.099 .039	.169 .109
2.078 2.047	2.203 2.172	.772 .754	.951	1.572	1.635	1.508	1.574 1.554	.146 .086	.216 .156	.099 .039	.169 .109

Insert Arrangements
Deutsch DBC 50H Series



Deutsch DL Series
Miniature Hermetic Connector with Bayonet Coupling

Qualified to MIL-C-83723 series 3 bayonet, Deutsch DL Hermetic connectors are designed for use where absolute sealing is required and where MIL-C-83723 connectors are specified. Featuring all of the benefits of Deutsch precision technology and built-in reliability, these connectors should be specified wherever ruggedness and high performance are desired.



Deutsch Part Numbering System

DL 60 H — 22 — 55 — P N

- DL — Identifies miniature connector with bayonet coupling
- 60 — Shell Style: 60-Square Flange, 61-Solder Mount, 64-Single Hole
- H — Class: H-hermetic
- 22 — Shell Size
- 55 — Insert Arrangement
- P — Contact Style
- N — Shell Polarization

Military Part Numbering System

M83723- 79H 22 55 N

- M83723- — Mil-desig.
- 79H — Shell Style: 79H-Square Flange, 80H-Solder Mount, 81H-Single Hole Mount
- 22 — Shell Size
- 55 — Insert Arrangement
- N — Shell Polarization

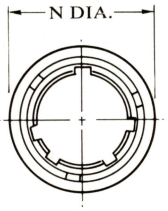
Deutsch Equivalent to Military Part Numbering System

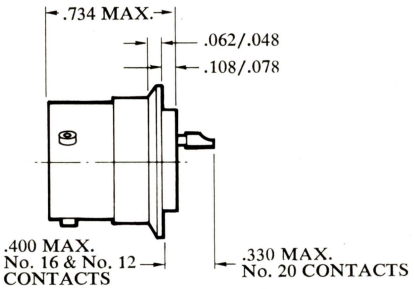
837 60H 22 55 N

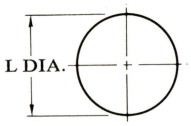
- 837 — Basic Deutsch Designation
- 60H — Shell Style: 60H-Square Flange, 63H-Solder Mount, 64H-Single Hole Mount
- 22 — Shell Size
- 55 — Insert Arrangement
- N — Shell Polarization

Shell Styles Deutsch DL Series

SOLDER MOUNT RECEPTACLES

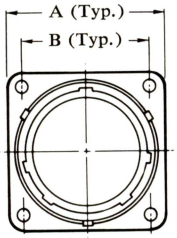


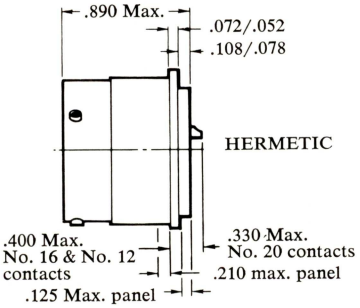


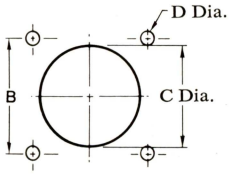


PANEL CUTOUT

SQUARE FLANGE MOUNT RECEPTACLES

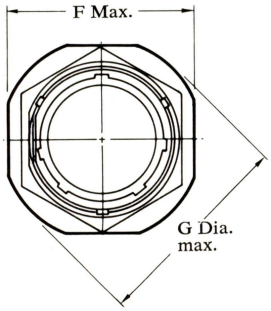


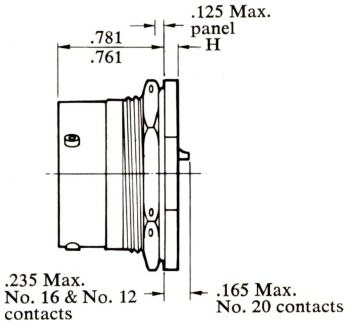


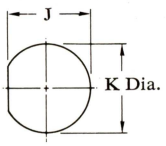


PANEL CUTOUT

SINGLE HOLE MOUNT RECEPTACLES

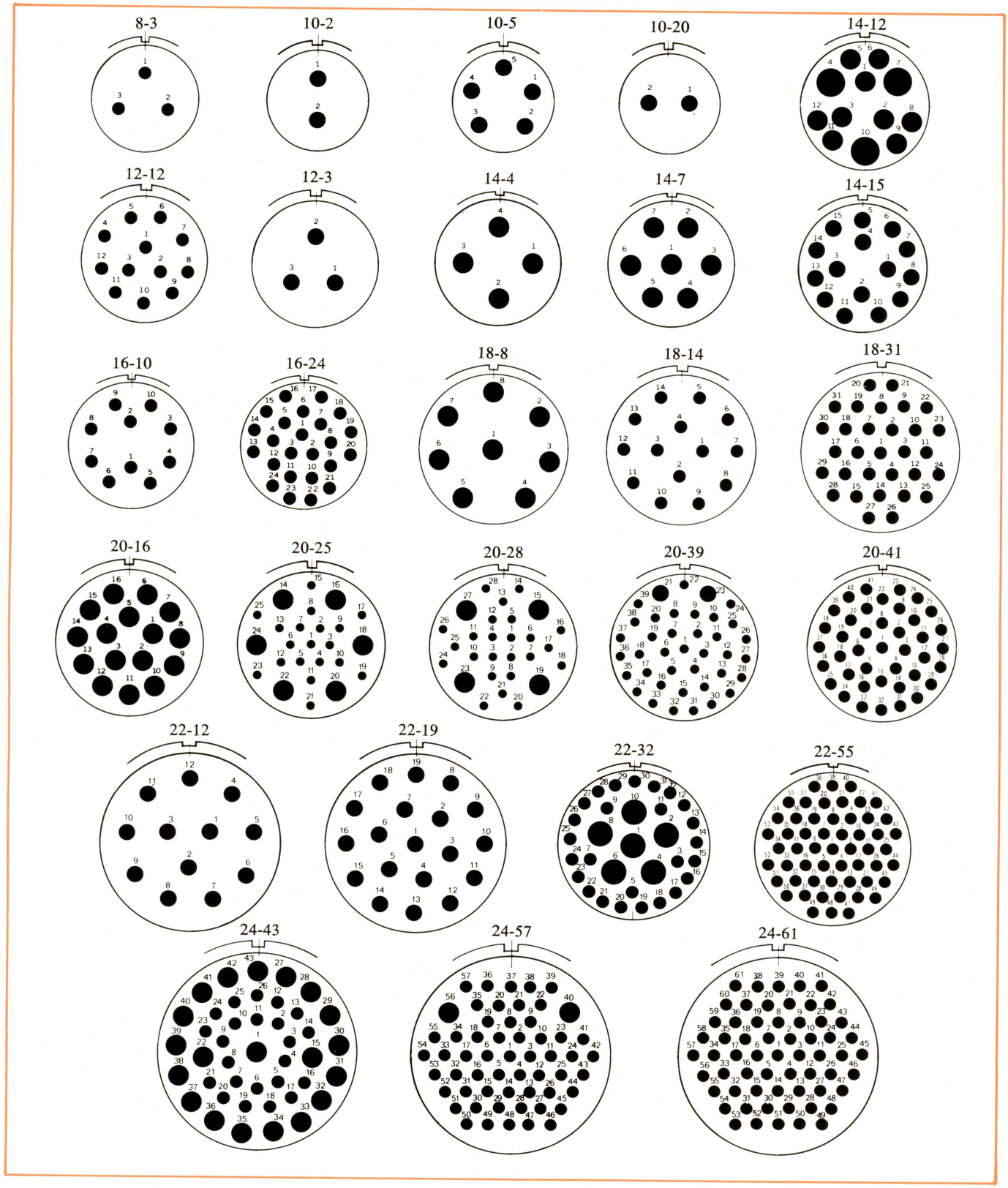




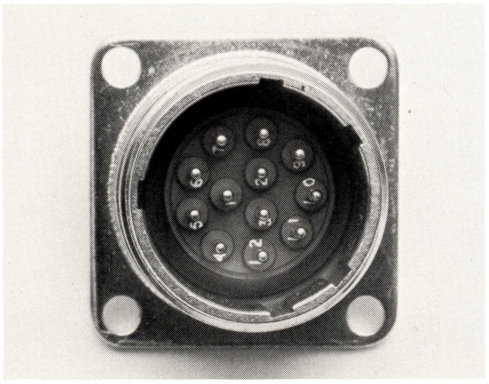


Size	A ±.005	B ±.005	C Min.	D ±.010	E Thread-2A	F Max.	G Max.	H	J ±.005	K ±.005	L ±.005	M Max.	N
8	.812	.594	.620	.120	1/2-20UNF	.979	1.068	.137 .097	.605	.635	.510	.766	.760 .720
10	.937	.719	.748	.120	5/8-24UNEF	1.104	1.192	.137 .097	.730	.760	.572	.906	.860 .820
12	1.031	.812	.913	.120	3/4-20UNEF	1.291	1.380	.137 .097	.917	.947	.760	1.078	1.065 1.025
14	1.125	.906	.980	.120	7/8-20UNEF	1.391	1.505	.137 .097	.980	1.010	.822	1.141	1.110 1.070
16	1.250	.969	1.107	.120	1-20UNEF	1.516	1.630	.137 .097	1.105	1.135	.947	1.266	1.230 1.190
18	1.343	1.062	1.209	.120	1 1/16-18UNEF	1.641	1.756	.137 .097	1.225	1.260	1.072	1.375	1.360 1.320
20	1.437	1.156	1.337	.120	1 3/16-18UNEF	1.766	1.860	.137 .097	1.350	1.385	1.197	1.510	1.450 1.410
22	1.562	1.250	1.452	.120	1 5/16-18UNEF	1.954	2.068	.168 .128	1.475	1.510	1.322	1.625	1.610 1.570
24	1.703	1.375	1.577	.149	1 7/16-18UNEF	2.079	2.160	.168 .128	1.600	1.635	1.447	1.760	1.730 1.690

Insert Arrangements
Deutsch DL 60 Series



Deutsch DBC 30H Series Miniature Hermetic Connector with Thread Coupling



The Deutsch DBC30H series is qualified to MIL-C-83723 series 3. This thread coupling connector type provides for a tight and assured seal during mating. With all of the Deutsch-developed and MIL-C-83723-specified performance characteristics built-in, these miniature thread type hermetics are a good choice for those who desire the utmost in performance and reliability.

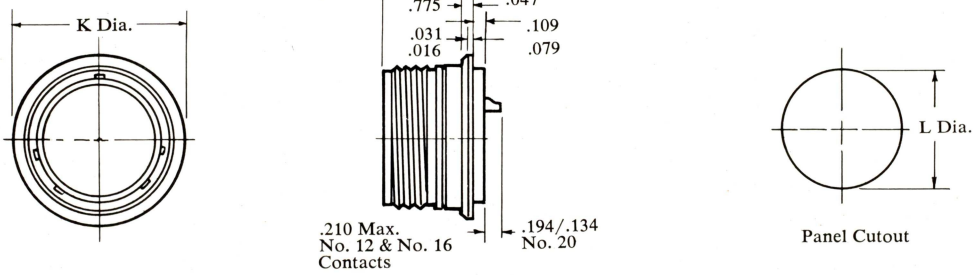
ORDERING INFORMATION

DBC 3 0H 27 2 P N

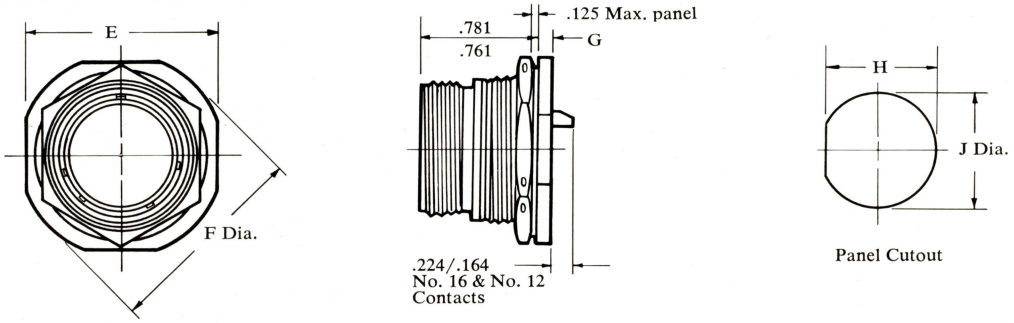
- **DBC** — Identifies Miniature Hermetic Connector
- **3** — Coupling Style 3 thread
- **0H** — Shell Style – Hermetic 0H – Square Flange 4H – Single Hole 3H – Solder Mount
- **27** — Shell Size
- **2** — Pin Contacts
- **P** — Contact Style
- **N** — Clocking Positions

Note: See Appendix II, Page 41 for Military P/N ordering information.

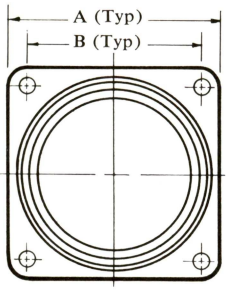
SOLDER MOUNT RECEPTACLE

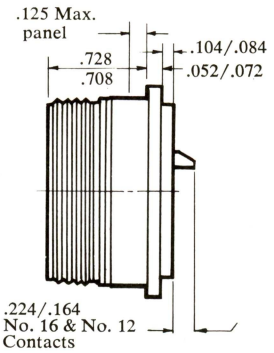


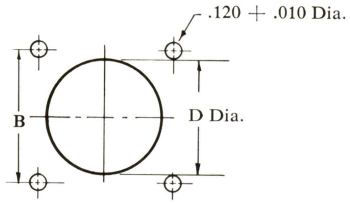
SINGLE HOLE MOUNT RECEPTACLE



SQUARE FLANGE MOUNT RECEPTACLES



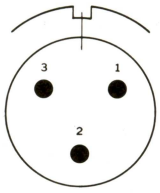




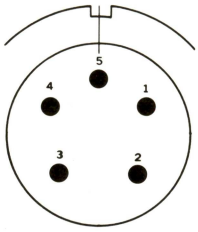
Panel Cutout

Size	A ±.005	B ±.005	C-Thread-2A	D	E	F	G	H ±.005	J ±.005	K	L ±.005	M Max.
8	.812	.594	1/2-20UNF	.620	.980 .949	1.078 1.047	.137 .097	.605	.635	.723 .703	.510	.756
10	.937	.719	5/8-24UNEF	.748	1.104 1.073	1.192 1.161	.137 .097	.730	.760	.850 .830	.572	.906
12	1.031	.812	3/4-20UNEF	.913	1.291 1.260	1.380 1.349	.137 .097	.917	.947	1.055 1.035	.760	1.078
14	1.125	.906	7/8-20UNEF	.980	1.391 1.360	1.516 1.485	.137 .097	.980	1.010	1.100 1.080	.822	1.141
16	1.250	.969	1-20UNEF	1.107	1.516 1.485	1.641 1.610	.137 .097	1.105	1.135	1.220 1.200	.947	1.266
18	1.343	1.062	1 1/16-18UNEF	1.209	1.641 1.610	1.766 1.735	.137 .097	1.225	1.260	1.350 1.330	1.072	1.375
22	1.562	1.250	1 5/16-18UNEF	1.452	1.954 1.923	2.078 2.047	.148 .128	1.475	1.510	1.600 1.580	1.322	1.625

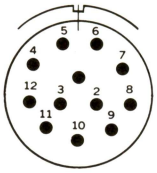
Insert Arrangements



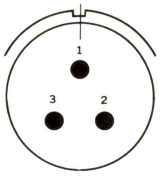
8-3



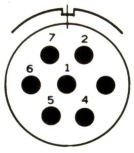
10-5



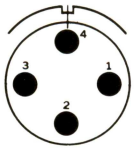
12-12



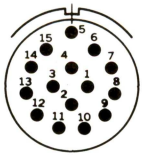
12-3



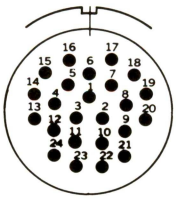
14-7



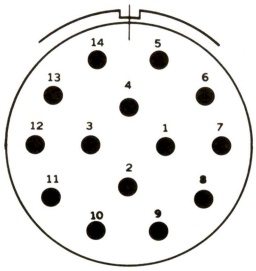
14-4



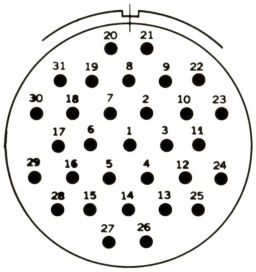
14-15



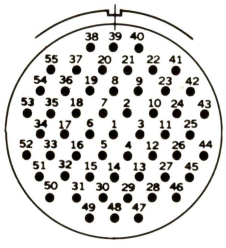
16-24



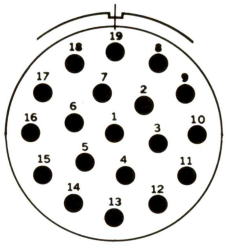
18-14



18-31



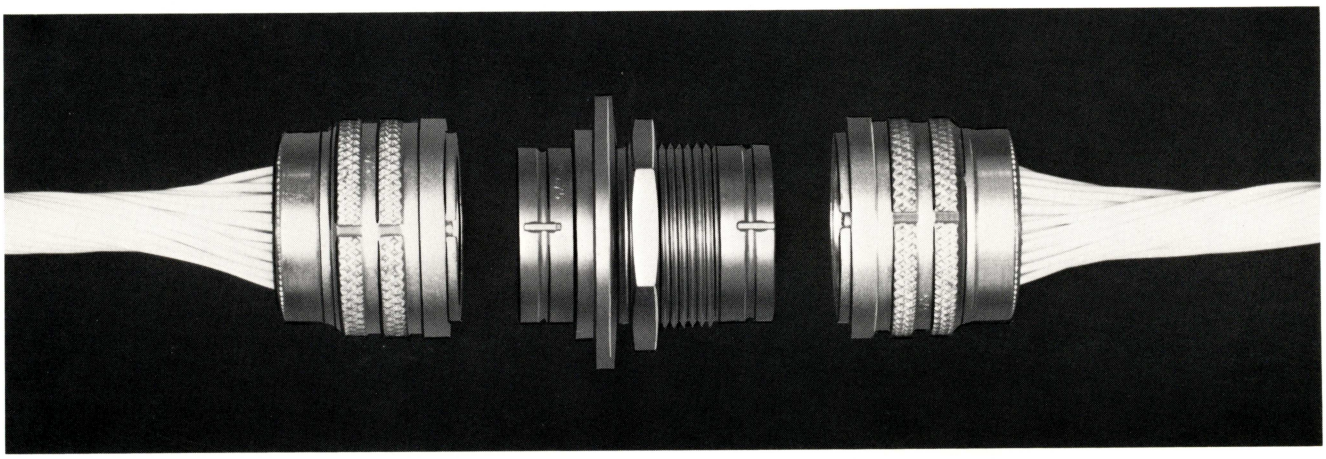
22-55



22-19

Deutsch Hermetics for Special Applications

Nowhere is the versatility of Deutsch hermetics more evident than in the area of "special applications." Applications calling for unique and versatile termination techniques, materials and processes can be met with a Deutsch designed and built hermetic. Such devices as cryogenic connectors, special bulkhead feedthrus, coaxial connectors, bussed contact configurations, and special RFI suppression connectors such as filter pin connectors are available to meet the most rigid environmental and electrical specifications.



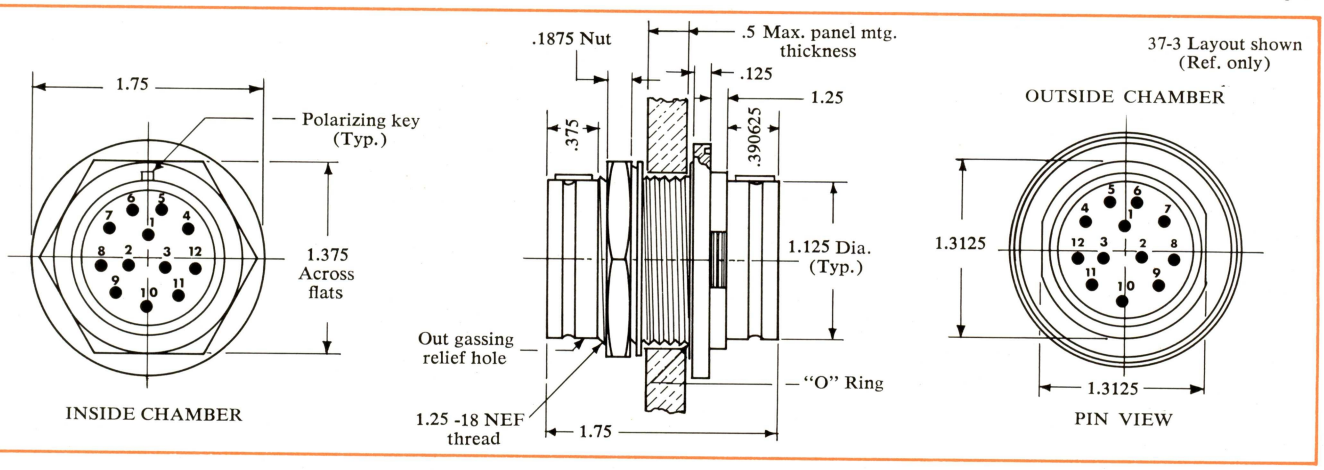
Calling for some of the most stringent requirements of any application are connectors designed for vacuum penetration. These rugged devices for sealing and thru-bulkhead penetrations are prime examples of Deutsch expertise in this area. The Deutsch "standard" thru-bulkhead connector is the DM feedthru connector. Giving true hermetic sealing against mechanical shock of 100 G's and operating at pressures up to 1000 PSI, this connector is available in various lengths and insert arrangements. Mating with this feedthru is the DS07 push-pull plug for outside the chamber connections and the 13084 push-pull plug, for inside the chamber connections.

ORDERING INFORMATION

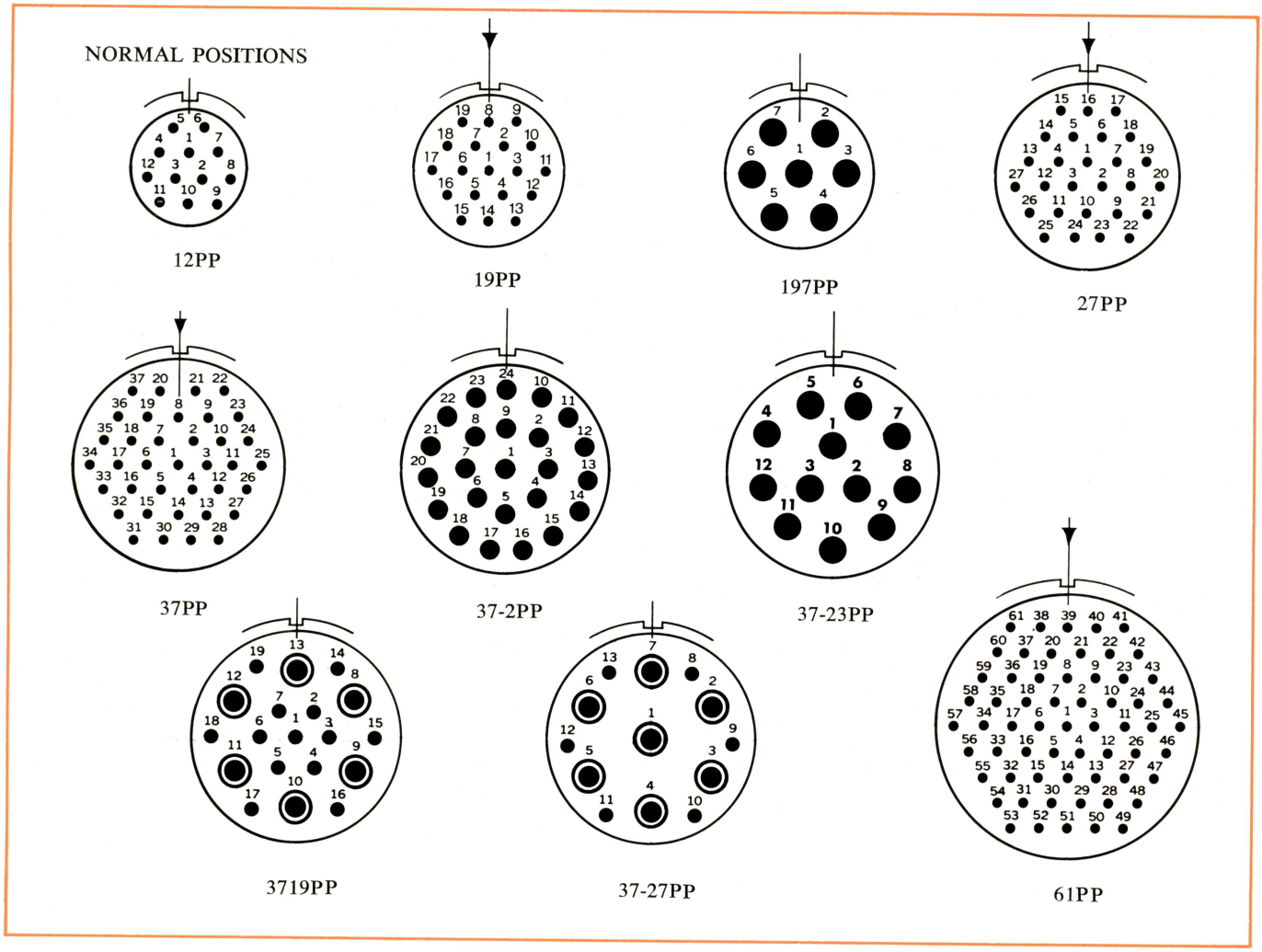
DM 5623 — 37 PP — 8

- **8** — Denotes Coax to be replaced by #8 Contacts
- **PP** — Denotes Pin to Pin Contacts
- **37** — Shell Size and Insert Arrangements
- **5623** — Denotes DM Series — Hermetic Receptacle and Miniature T.B.F. Single Hole Mounting
- **DM** — Identifies a Deutsch Miniature Electrical Connector

Dimensional Information-DM 5623

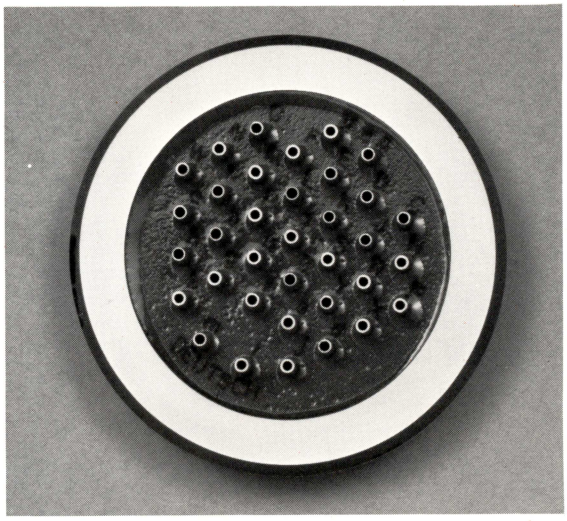


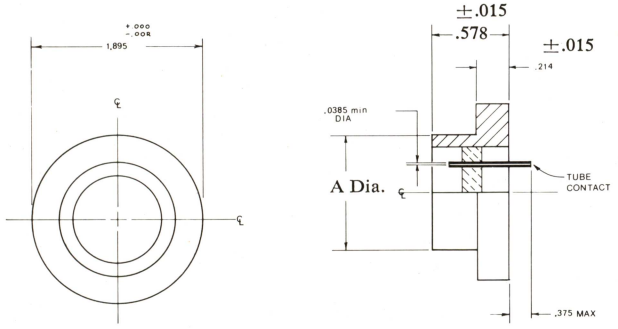
Insert Arrangements

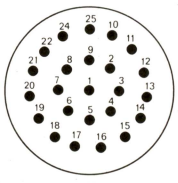


High-Density Feedthru

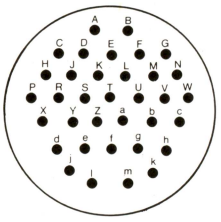
Other connectors are available for vacuum penetration applications such as the 34017 high density instrumentation feedthru. With a leakage rate of less than 1×10^{-8} cc./sec. these connectors are also designed to withstand temperatures up to 392°F. Contact tube length and flange design can be made to fit whatever the requirement demands.







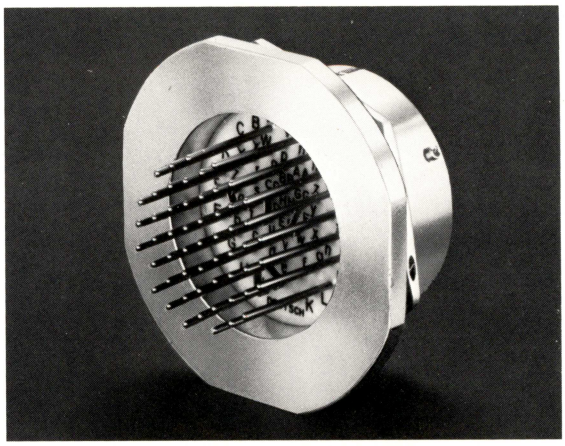
37-2



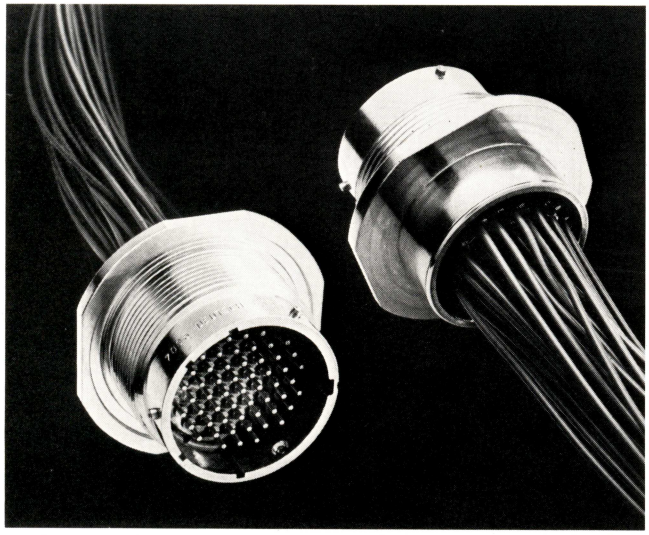
28-15

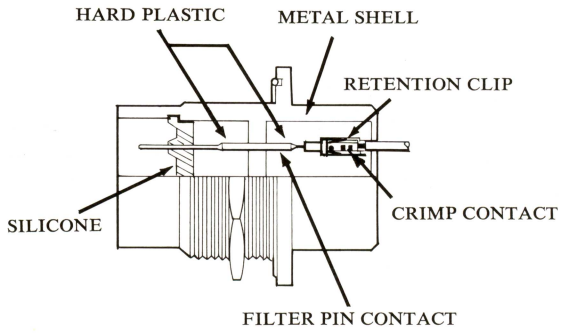
Deutsch Hermetic Connectors with Extended Contacts for Flat Flexible Cabling

Deutsch produces hermetics with either solder-pot, eyelet, weld, button-hook or crimped terminations. Extended contacts of various lengths may be supplied to provide a variety of terminations. Longer extended contacts can be used to attach directly to other components such as fuses, diodes, resistors, etc. Shorter contacts are ideal for use with circuit boards or flat flexible cabling.



Deutsch Filter Pin Connectors





CUTAWAY VIEW OF FILTER PIN CONNECTOR

Crimp terminated contact eliminates soldering.
Filters are permanently mounted in metal insert.

Plastic insert supports filter pin, preventing side load damage.

Filter pin connectors eliminate the RFI window in black boxes which exists whenever standard connectors are used. Unwanted radio frequencies are blocked, yet the desired lower frequencies are free to pass. Filter pins are used with size #22 contacts on the sub-miniature RTK Series connectors, and with #20 contacts on the AFD Series connectors. AFD Connectors are intermateable with NAS 1599, MIL-C-83723 and MIL-C-26482 bayonet locking styles.

The Deutsch Filter Pin Connectors feature a one piece filter pin that is firmly mounted in a metal and plastic insert to prevent intermittencies under vibration and to protect the filter under loading. The sealing qualities make it virtually impervious to moisture and other contaminants.

Since the Deutsch Filter Pin Connectors are the solderless type, there is no possibility of damaging the filter by over-heating through soldering. This feature greatly increases reliability while reducing assembly costs. Positive contact retention is provided by the proven MIL-C-83723 retention clip.

With the filter contacts mounted in a metal insert, the connector becomes a hermetically sealed unit exhibiting a leak rate of less than 0.01 Micron cu. ft./hr. at 14.7 psig. Standard 3000 pF (miniature). 1500 pF (sub-miniature) (minimum) low-pass, Pi network, ferrite capacitors provide a minimum no-load insertion loss (attenuation) of 50 dB from 100 MHz to 10 GHz for miniature connectors; 45 dB from 200 MHz to 10 GHz for sub-miniature connectors. Other capacitors with higher or lower cut-off frequencies are available to meet most applications.

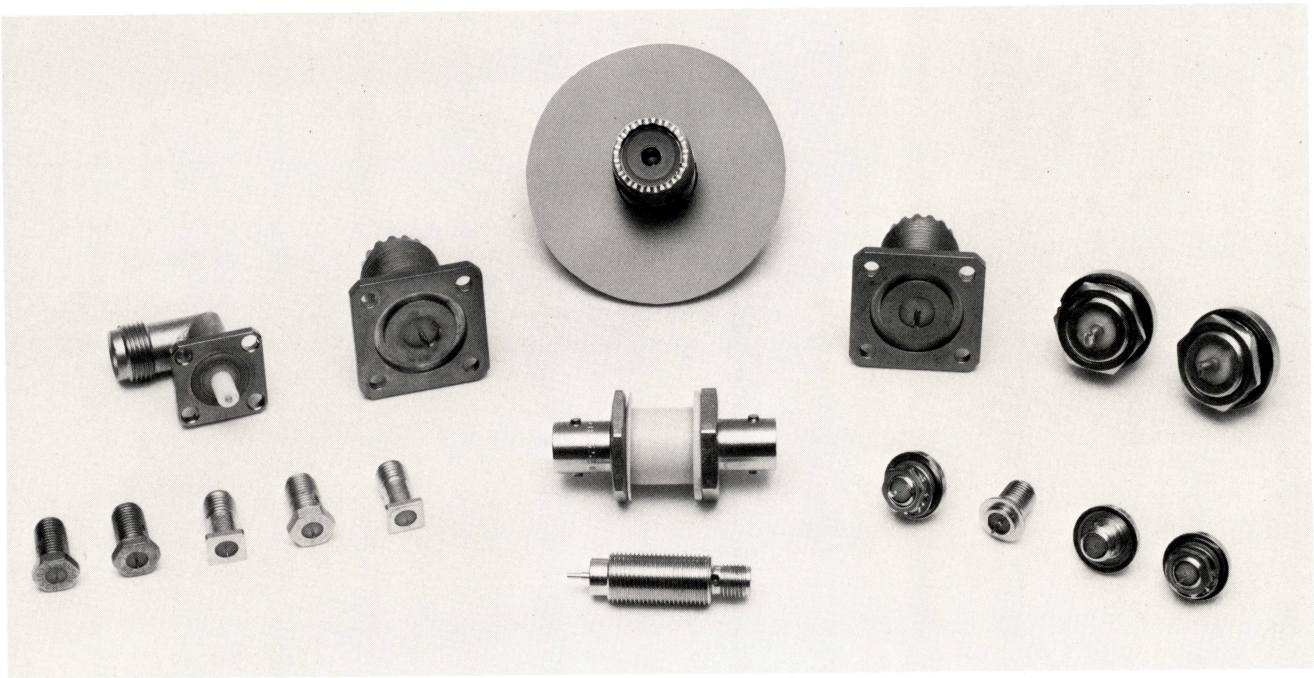
These filter pin contacts are surrounded by conical shaped silicone risers which fit into the chamfered socket lead-ins upon mating. Since they are permanently mounted in the metal insert of the receptacle, the connector interface is never distrubed during wire termination. The receptacles are designed to use crimp type sockets which are insertable and removable from the rear. This design eliminates the possibility of damage to the critical interface and assures maximum sealing integrity.

ORDERING INFORMATION

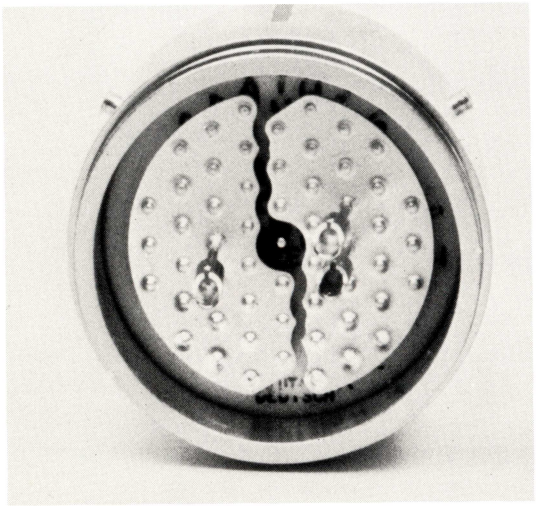
AFD2 0 - 16-26 P N XXXX

- XXXX — Modification
- N — Alternate Position
- P — Pin (P)
- 16-26 — Shell Size and Insert Arrangements
- 0 — Mounting Style
  - 0 — Receptacle, Narrow Square Flange (AFD 2 or RTK 2)
  - 4 — Receptacle, Single Hole Mount (AFD 2 only)
  - 7 — Receptacle, Single Hole Mount (RTK 2 only)
- AFD2 — Filter Pin Connector Basic Part No.:
  - AFD 2 (Miniature Connector with Filter Pin Contacts)
  - RTK 2 (Sub-miniature Connector with Filter Pin Contacts)

Deutsch Hermetically Sealed RF Coaxial Connectors



Deutsch produces a wide range of high-performance RF connectors which feature the Deutsch compression glass seal. Deutsch coaxial RF connectors are a standard line and utilize the same stringent manufacturing processes as do the Deutsch cylindrical and rectangular power connectors. All Deutsch coaxial RF connectors meet or exceed the performance requirements of the latest revision of MIL-C-39012, while Deutsch SMA and TNC type connectors are fully qualified to MIL-C-39012. Hermetically sealed RF connectors to meet your radio frequency and microwave applications are available in N, BNC, TNC, SMA, and Twin-Ax types. These RF hermetics insure a leak rate of under 1 x 10^{-8} cc per second at one atmosphere differential.



BUSED CONTACTS SIMPLIFY WIRING

BUSED CONTACTS FOR SIMPLIFYING WIRING PROCEDURES

Virtually any kind of busing arrangement can be provided in hermetic connectors. Bused contacts save space and weight, assure reliability, and greatly simplify the wiring procedure. Reliable termination is accomplished within the receptacle. Busing allows a circuit to be continued into the assembly through one contact and out through one or more contacts to additional assemblies.

DEUTSCH HERMETICS PERMIT THE USE OF A VARIETY OF CONTACT TERMINATIONS

Hermetic receptacles are available with either solder-pot, eyelet, weld, button-hook or crimped terminations to mate with each plug series in the Deutsch line.

Solder-type extended contacts of different lengths may be supplied to provide a variety of terminations. Long extended contacts can be used for attaching directly to components such as fuses, diodes, resistors, etc. Shorter extended contacts are ideal for use with circuit boards or flat flexible cabling. Pyramiding of contacts allows circuits to be supplied from one central source to all layers in the package. Spot weld terminations can be provided for applications subjected to extreme shock and vibration. They provide extra high physical strength.

Deutsch Hermetics Qualified to Military Specifications

The Deutsch Company builds several lines of high performance hermetic connectors qualified under the latest military specifications. These specifications, MIL-C-0081511D, MIL-C-83723, MIL-C-81703, and MIL-C-0026482 are intended to call out devices used on military aerospace applications and related ground support equipment. When specifying a connector qualified to a Mil-Spec, use the military part number to order by. This chart shows the various Deutsch connectors covered by the latest specifications, their military equivalent part number, and what page to find them in this brochure.

815 SERIES HIGH DENSITY
MILITARY EQUIVALENTS QUALIFIED TO MIL-C-0081511D

Deutsch Part Number	Military Part Number	Page
A81511D	M81511/42D	2
A81514D	M81511/44D	"
A81511L	M81511/47L	"
A81514L	M81511/48L	"
B81511D	M81511/52D	"
B81514D	M81511/54D	"
B81511L	M81511/50L	"
B81514L	M81511/57L	"

DBC70H SERIES MINIATURE
MILITARY EQUIVALENTS QUALIFIED TO MIL-C-81703

Deutsch Part Number	MIL/Deutsch Equivalent	Military Part Number	Page
DBC72H	D8172H	MS3422H	22
DBC70H	D8170H	MS3424H	"
DBC74H	D8174H	MS3464H	"

DBC50H SERIES MINIATURE
MILITARY EQUIVALENT QUALIFIED TO MIL-C-83723 and MIL-C-0026482

Deutsch Part Number	MIL-C-83723 Part Number	MIL-C-0026482 P/N	Page
DBC50H*	M83723-09H	MS3440H*	25
DBC58H	M83723-10H	MS3442H	"
DBC53H	M83723-11H	MS3443H	"
DBC54H	M83723-12H	MS3449H	"

DBC30H SERIES MINIATURE
MILITARY EQUIVALENT QUALIFIED TO MIL-C-83723

Deutsch Part Number	MIL-C-83723 Part Number	Page
DBC30H	M83723-88H	31
DBC34H	M83723-89H	"
DBC33H	M83723-90H	"

DL60H SERIES MINIATURE
MILITARY EQUIVALENT QUALIFIED TO MIL-C-83723

Deutsch Part Number	MIL-C-83723 Part Number	Page
DL60H	M83723-79H	28
DL63H	M83723-80H	"
DL64H	M83723-81H	"

**To order crimp type connector use N in place of H in Military part number and RBC instead of DBC in Deutsch part number.*

APPENDIX I
General Operating Specifications
Deutsch Hermetic Connectors

DEUTSCH DJL SERIES

DIELECTRIC WITHSTANDING VOLTAGE (Test Voltage) VAC (rms)

	Service Rating	
	Mated	Unmated
SEA LEVEL	1300	1300
50,000 FT.	800	550
70,000 FT.	800	350

CURRENT RATING
22 5.0 AMPS.

SILICONE INSERT
Front and rear silicone inserts are devoid of all organic matter.

CORROSION
Meets requirements of MIL-STD-1344, method 1001, test condition B.

CONTACT MILLIVOLT DROP
22 contact 60 millivolts at 5 amps and 25°C.

DIELECTRIC STRENGTH
300 volts/mil

CRIMP RETENTION
Meets requirements of MIL-STD-39029.

VIBRATION—
Meets requirements of MIL-C-0038999.

USAGE WIRE SIZES
22 Contact—Receive conductor AWG
22 thru 28 Rear Insert will seal on smooth insulation from .030 to .060 O.D.

INSULATION RESISTANCE
5000 Megohms minimum at 25°C.

HUMIDITY
Insulation Resistance in excess of 100 Megohms at 25°C when tested in accordance with MIL-C-0038999.

CONTACT RETENTION
Contacts withstand a minimum load of:

Contact Size	Weight
22D	10 lbs

THERMAL SHOCK
Meets requirements of MIL-C-0038999.

ALTITUDE IMMERSION
Meets requirements of MIL-C-0038999.

FOOTNOTE:
For applicable test sequence and method, see MIL-C-0038999.

DEUTSCH 815 SERIES

DIELECTRIC WITHSTANDING VOLTAGE (Test Voltage) VAC (rms)

Service Rating I

	MATED	UNMATED
SEA LEVEL	1800	1500

Service Rating II

	MATED	UNMATED
SEA LEVEL	2300	2300

CONTACT SPACING (Min. Nominal)
23 .084 Center to Center
20 .1195 Center to Center
16 .160 Center to Center
12 .230 Center to Center

CURRENT RATING
23 5.0 Amps.
20 7.5 Amps.
16 13 Amps.
12 23 Amps.

SILICONE INSERT
Front and rear silicone inserts are devoid of all organic matter.

CORROSION
Meets requirements of MIL-STD-1344, method 1001, test condition B.

CONTACT MILLIVOLT DROP
23 70 millivolts at 5 amps & 25°C
20 55 millivolts at 7.5 amps & 25°C
16 50 millivolts at 13 amps & 25°C
12 50 millivolts at 23 amps & 25°C

VIBRATION
Meets requirements of MIL-C-0081511.

DIELECTRIC STRENGTH
300 volts/mil

CRIMP RETENTION
Meets requirements of MIL-STD-39029.

USABLE WIRE SIZE
23 Size Contact—Receive conductor AWG 22 thru 26. Rear Insert will seal on smooth insulation from .030" to .054" O.D.

20 Size Contact—Receive conductor AWG 20 thru 24. Rear Insert will seal on smooth insulation from .040" to .074" O.D.

16 Size Contact—Receive conductor AWG 16 thru 20. Rear Insert will seal on smooth insulation from .060" to .103" O.D.

12 Size Contact—Receive conductor AWG 12 thru 14. Rear Insert will seal on smooth insulation from .097" to .135" O.D.

INSULATION RESISTANCE
5000 Megohms minimum at 25°C.

DIELECTRIC WITHSTANDING VOLTAGE (Test Voltage) ALTITUDE

Wired, assembled, unmated connectors will withstand:

Service Rating I
700 VAC (rms)
375 VAC (rms)
200 VAC (rms)

Service Rating II
800 VAC (rms)
500 VAC (rms)
200 VAC (rms)

Simulated Altitude
50,000 ft
70,000 ft
110,000 ft

MOISTURE RESISTANCE
Insulation resistance in excess of 500 megohms at 25°C when tested in accordance with MIL-C-0081511.

TEMPERATURE
Operative at temperatures from −65°C to +200°C.

CONTACT RETENTION
Contacts withstand a minimum load of:

	Contact Size
12 lbs.	23
15 lbs.	20
25 lbs.	16
25 lbs.	12

THERMAL SHOCK
Meets Requirements of MIL-C-0081511.

DURABILITY
No electrical or mechanical defects after 500 cycles of engagement and disengagement per MIL-C-0081511.

ALTITUDE IMMERSION
Meets Requirements of MIL-C-0081511.

FOOTNOTE:
For applicable test sequence and method, see MIL-C-0081511.

DEUTSCH DBC 30H, DBC 50H, RBC 50H, DL 60 SERIES

DIELECTRIC WITHSTANDING VOLTAGE (Test Voltage)
Sea Level — 1500 VAC (rms)

CONTACT SPACING (MIN. NOMINAL)
20 . . . . . 130 center to center
16 . . . . . 168 center to center
12 . . . . . 230 center to center

CURRENT RATING
20 . . . . . 7.5 amps
16 . . . . . 20 amps
12 . . . . . 35 amps

SILICONE INSERT
Front and rear silicone insert are devoid of all organic matter.

CORROSION
Meets requirements of MIL-STD-202A, Method 101, Condition "B".

CONTACT MILLIVOLT DROP
20 . . . . 15 millivolts at 7.5 amps
16 . . . . 21 millivolts at 20 amps
12 . . . . 22 millivolts at 35 amps

VIBRATION
Maintains continuity and exhibitis no mechanical or physical damage after a total of 12 hours vibration (4 hours in each of three mutually perpendicular axes) when subjected to .06" D.A. or 20G's from 10 to 2000 to 12 Hz. 50% of vibration time at ambient temperature, 25% of vibration time at −55°C and 25% of vibration time at +200°C.

PHYSICAL SHOCK
No unlocking, unmating or other unsatisfactory result after 100G's in each of three mutually perpendicular planes.

DIELECTRIC STRENGTH
500 volts per mil, minimum on a .030" thick specimen.

CRIMP RETENTION
Meets requirements of MIL-C-83723.

MOISTURE RESISTANCE
Insulation resistance in excess of 100 megohms after procedure in MIL-STD-202A, method 106.

TEMPERATURE
Operative at temperatures from −55°C to +200°C.

CONTACT RETENTION
Contacts withstand a minimum load of:
20 lbs. for size 20
25 lbs. for size 16
30 lbs. for size 12

In either direction, contact displacement less .012".

THERMAL SHOCK
No cracking, chipping or leaking after 5 cycles per MIL-C-83723 at −55°C to +200°C.

USABLE WIRE SIZE
20 contacts—receive conductor AWG 20 thru 24. Rear insert will seal on smooth insulation from .040" to .083" O.D.

16 contacts—receive conductor AWG 16 thru 20. Rear insert will seal on smooth insulation from .054" to .103" O.D.

12 contacts—receive conductor AWG 12 thru AWG 14. Rear insert will seal on smooth insulation from .100" to .158" O.D.

INSULATION RESISTANCE
1000 megohms minimum at 25°C.

DIELECTRIC WITHSTANDING VOLTAGE (Test Voltage) ALTITUDE
Wired, assembled, unmated connectors will withstand.
500 VAC (rms) at 50,000 ft.
375 VAC (rms) at 70,000 ft.
200 VAC (rms) at 110,000 ft.

DURABILITY
No electrical or mechanical defects after 500 cycles of engagement and disengagement per MIL-C-83723.

ALTITUDE IMMERSION
Meets requirements of MIL-C-83723.

FOOTNOTE
For applicable test sequence and method see MIL-C-83723.

DEUTSCH RSM 5130, RSM 5150 SERIES

CONTACT ENGAGEMENT & SEPARATION FORCES
Meet the requirements of MIL-C-81511, using test pin conforming to the Deutsch pin contact and .5 oz. minimum separation.

DIELECTRIC WITHSTANDING VOLTAGE (Sea Level)
#22 Contact spacing—1500V @ 60 cps
#16 Contact spacing—1500V @ 60 cps
#20 Contact spacing—1500V @ 60 cps

CONTACT SPACING
#22 Contacts—.080 ctrs
#16 Contacts—.'68 ctrs
#20 Contacts—.130 ctrs

VIBRATION
Maintains continuity and exhibits no mechanical or physical damage during or after testing per MIL-STD-202, Method 204 condition "D" (Latest Revision)

CURRENT RATING
#22 Contacts—5 amps maximum
#16 Contacts—13 amps maximum
#20 Contacts—7.5 amps maximum

ARC RESISTANCE
All dielectric materials withstand a minimum of 130 seconds per ASTM method designation D-495-48T.

SILICONE INSERTS
Resilient insert materials are devoid of all organic matter. Standard inserts resist immersion in solvent per MIL-C-81511

CORROSION
Mated connectors meet requirements of MIL-STD-202, Method 101, Condition "B" (Latest Revision) per MIL-C-81511

PHYSICAL SHOCK
No unlocking, unmating or other unsatisfactory result during or after 50 G's in each of three mutually perpendicular planes.

DIELECTRIC STRENGTH
325 volts per mil minimum

AIR LEAKAGE
Less than 0.01 micron cu ft/hr at 14.7 psi differential. Meets Grade "A" seal per MIL-S-8484 (USAF)

TEMPERATURE
Operative at temperatures from —67°F to 300°F. No cracking, chipping or leaking after 5 cycles per MIL-C-81511 at rated temperature.

INSERT RETENTION
100 psi min. (per MIL-C-81511)

USABLE WIRE SIZE (Per MIL-W-16878/4A)
#22 Contacts — receive maximum conductor AWG 22
#16 Contacts — receive maximum conductor AWG 16
#20 Contacts — receive maximum conductor AWG 20

INSULATION RESISTANCE
5,000 megohms min. @ 75°F.

DURABILITY
No electrical or mechanical defects after 500 cycles of engagement and disengagement per MIL-C-18511

PROD. DAMAGE RESISTANCE (SOCKET CONTACTS)
#22 Contacts—resist ⅛ in.-lb. when tested per MIL-C-23216
#16 Contacts—resist 2 in.-lbs.
#20 Contacts—resist ½ in.-lb.

MATERIALS
Shell-Mild steel
Pin Contacts—High nickel-iron alloy
Inserts—compression glass
plastic
silicone

FINISH
Shell fused tin over cadmium
contacts—fused tin over cadmium

DEUTSCH RTK 31H, RTK 57H SERIES

CONTACT ENGAGEMENT & SEPARATION FORCES
Meet the requirements of MIL-C-81511, using test pin conforming to the Deutsch pin contact and .5 oz. minimum separation force.

DIELECTRIC WITHSTANDING VOLTAGE (Sea Level)
#22, #20 and #16 Contact spacing—1500V @ 60 Hz

CONTACT SPACING
#22 Contacts—.080 ctrs
#16 Contacts—.168 ctrs
#20 Contacts—.130 ctrs

VIBRATION
Maintains continuity and exhibits no mechanical or physical damage during or after testing per MIL-STD-202, Method 204 condition "D" (Latest Revision)

CURRENT RATING
#22 Contacts—5 amps maximum
#16 Contacts—13 amps maximum
#20 Contacts—7.5 amps maximum

ARC RESISTANCE
All dielectric materials withstand a minimum of 130 seconds per ASTM method designation D-495-48T.

SILICONE INSERTS
Resilient insert materials are devoid of all organic matter. Standard inserts resist immersion in solvent per MIL-C-81511

CORROSION
Mated connectors meet reguirements of MIL-STD-202, Method 101, Condition "B" (Latest Revision) per MIL-C-81511

PHYSICAL SHOCK
No unlocking, unmating or other unsatisfactory result during or after 50 G's in each of three mutually perpendicular planes.

AIR LEAKAGE
Less than 0.01 micron cu ft/hr at 14.7 psi differential. Meets Grade "A" seal per MIL-S-8484 (USAF)

TEMPERATURE
Operative at temperatures from —67°F to 300°F.

THERMAL SHOCK
No cracking, chipping or leaking after 5 cycles per MIL-C-81511 at rated temperature.

INSERT RETENTION
100 psi min. (per MIL-C-81511)

USABLE WIRE SIZE (Per MIL-W-16878/4A)
#22 Contacts—receive conductor AWG 22 thru AWG 26.
#16 Contacts—receive conductor AWG 16 thru 20
#20 contacts—receive conductor AWG 20 thru 24

INSULATION RESISTANCE
5,000 megohms min. @ 75°F.
1,000 megohms min. @ 300°F.

DURABILITY
No electrical or mechanical defects after 500 cycles of engagement and disengagement per MIL-C-81511

MATERIALS
Shell-Mild steel
Pin Contacts—High nickel-iron alloy
Inserts—compression glass
plastic
silicone

FINISH
Shell—cadmium plated
Contacts—cadmium plated

DEUTSCH RBC 70H, DBC 70H SERIES

DIELECTRIC WITHSTANDING VOLTAGE (Test Voltage)
Sea Level—1500 VAC (rms)

CONTACT SPACING
#20 Contacts—.138 min. centers
#16 Contacts—.170 min. centers

CURRENT RATING
#20 Contacts—7.5 amps
#16 Contacts—20 amps

USABLE WIRE SIZE
#20 Contacts receive conductor AWG 18 Max.
#16 Contacts receive conductor AWG 16 Max.

INSERT RETENTION
Withstands pressure differentials of 100 PSID min.

ALTITUDE
Properly wired and unmated, the connectors will withstand 500 volts (rms) 60 CPS at 50,000 ft. and 200 volts (rms) 60 CPS at 110,000 ft.

CONTACT RESISTANCE
Meets all applicable requirements of NAS 1599

INSULATION RESISTANCE
5,000 Megohms min. at 75°F. per NAS 1599

THERMAL SHOCK
No deterioration or failure after 5 cycles @ —67°F. to +392°F.

CORROSION
Exceeds requirements of MIL-STD-202, method 101, test condition "B" per NAS 1599

VIBRATION
Exceeds requirements of MIL-STD-202, method 204, test condition "D" per NAS 1599

PHYSICAL SHOCK
No unlocking, discontinuity or other unsatisfactory results during and after 100 G's in each of three (3) mutually perpendicular planes

AIR LEAKAGE
Less than 0.01 Micron cu. ft./hr. at 14.7 psi diff. per NAS 1599 Meets Grade "A" seal per MIL-S-8484 (USAF)

DURABILITY
500 cycles of engagement per NAS 1599

MOISTURE RESISTANCE
Meets all applicable requirements of NAS 1599

TEMPERATURE
Operative at temperatures from —67°F. to +392°F.

SHELL SIZES
3, 7, 12, 19, 27, 37, and 61

MATERIALS
Shell—Mild steel
Pin Contacts—High nickel-iron alloy
Inserts—compression glass
plastic
silicone

FINISH
Shell—tin over nickel
Contacts—gold over nickel

APPENDIX II
Shell Polarization

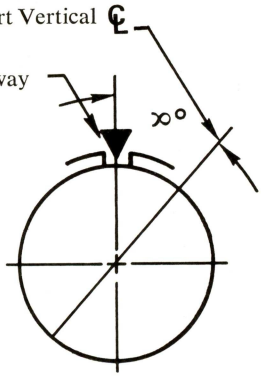
DEUTSCH DBC 50H, RBC 50H SERIES

Size and Arrangement	Alternate Positions				
	N	W	X	Y	Z
8-3	0°	60°	210°		
8-4	0°	45°			
8-33	0°	90°			
10-6	0°	90°			
12-3	0°			180°	
12-8	0°	90°	112°	203°	292°
12-10	0°	60°	155°	270°	295°
14-4	0°	45°			
14-5	0°	40°	92°	184°	273°
14-12	0°	43°	90°		
14-15	0°	17°	110°	155°	234°
14-18	0°	15°	90°	180°	270°
14-19	0°	30°	165°	315°	
16-8	0°	54°	152°	180°	331°
16-23	0°	158°	270°		
16-26	0°	60°		275°	338°
18-8	0°				
18-11	0°	62°	119°	241°	340°
18-30	0°	180°	193°	285°	350°
18-32	0°	85°	138°	222°	265°
20-16	0°	238°	318°	333°	347°
20-39	0°	63°	144°	252°	333°
20-41	0°	45°	126°	225°	
22-12	0°				
22-21	0°	16°	135°	175°	349°
22-32	0°	72°	145°	215°	288°
22-41	0°	39°	135°	264°	
22-55	0°	30°	142°	226°	314°
24-19	0°	30°	165°	315°	
24-31	0°	90°	225°		
24-61	0°	90°	180°	270°	324°

Series 1 Insert Alternate Clocking Positions

▼ Indicates ℄ of Shell

The symbol ∞° indicates insert rotation in degrees.

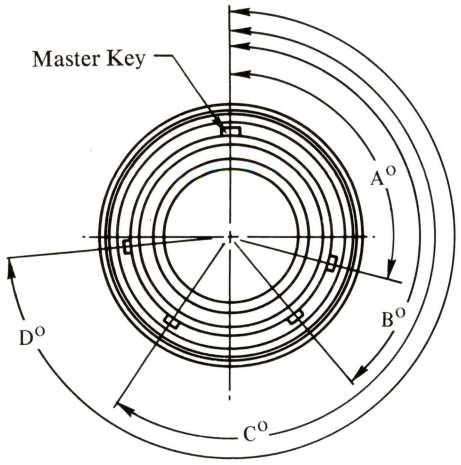


Pin Insert Face View (Socket Insert Face opposite.)

NOTES:

1. For alternate polarizing positions, the connector insert is rotated in respect to the shell.
2. In "Normal Position" (position "N") the insert vertical centerline coincides with the centerline of the master keyway of the shell.
3. In "Alternate Positions" (positions "W", "X", "Y", and "Z") the pin insert is rotated degrees clockwise relative to C/L of the master Keyway of shell.
4. In "Alternate Positions" (positions "W", "X", "Y", and "Z") the socket insert is rotated degrees counterclockwise relative to the C/L of the master keyway of shell.

DEUTSCH DL 60H, DBC 30H SERIES



Plug Face shown (Keyways in Receptacle Shell are opposite.)

Series 3 Shell Alternate Keying Positions

In the "Alternate Keying Position" (positions 6, 7, 8, 9, & 10), the keys are positioned as indicated in the chart below with reference to master key.

Consult factory for availability of alternate insert clocking position.

When the alternate shell keying positions are used, the applicable insert is always in the normal position.

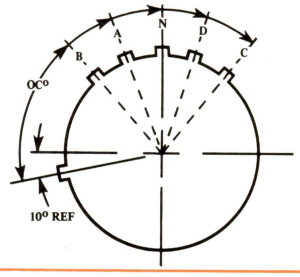
Key/Keyway Locations

Keying Position	Size 8				Size 10				Size 12 thru 24			
	A°	B°	C°	D°	A°	B°	C°	D°	A°	B°	C°	D°
Normal	105	140	215	265	105	140	215	265	105	140	215	265
6	102	132	248	320	102	132	248	320	18	149	192	259
7	80	118	230	312	80	118	230	312	92	152	222	342
8	35	140	205	275	35	140	205	275	84	152	204	334
9	64	155	234	304	64	155	234	304	24	135	199	240
10					25	115	220	270	98	152	268	338

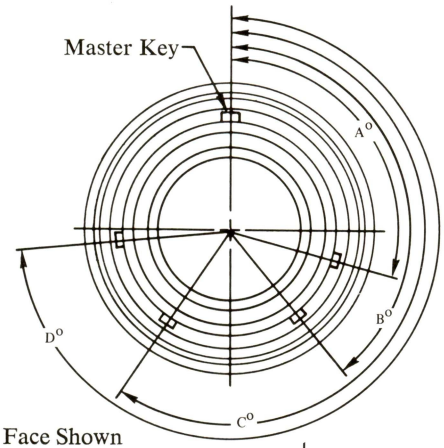
NOTE: Consult Factory for RTK and RSM Shell Polarization Information.

DEUTSCH DJL SERIES

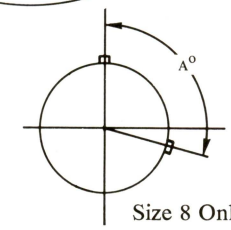
Position	Size 8 oc°	Size 10 oc°	Size 12 oc°	Size 14 oc°	Size 16, 18 & 20 oc°	Size 22 and 24 oc°
N	100°	100°	100°	100°	100°	100°
A	82°	86°	80°	79°	82°	85°
B		72°	68°	66°	70°	74°
C		128°	132°	134°	130°	126°
D	118°	114°	120°	121°	118°	115°



DEUTSCH 815 SERIES



Plug Face Shown
(Keyways in Receptacle
Shells are opposite.)



Size 8 Only

Alternate Shell Keying Positions

Short Shell Key/Keyway Locations

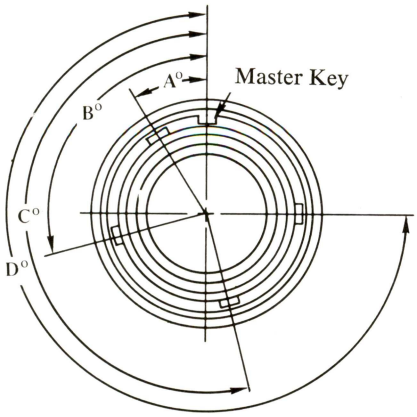
Keying Position	Size 8				Sizes 10 & 14				Sizes 16 & 18			
	A°	B°	C°	D°	A°	B°	C°	D°	A°	B°	C°	D°
1	128	–	–	–	105	140	215	265	105	140	215	265
2	190	–	–	–	102	132	248	320	18	149	192	259
3	205	–	–	–	80	118	230	312	92	152	222	342
4	220	–	–	–	35	140	205	275	84	152	204	334
5	235	–	–	–	64	155	235	304	24	135	199	240
6	250	–	–	–	35	115	220	270	98	152	268	338

Long Shell Key/Keyway Locations

Keying Position	Size 8				Sizes 10 & 14				Sizes 16 & 18				Sizes 20, 22 & 24			
	A°	B°	C°	D°	A°	B°	C°	D°	A°	B°	C°	D°	A°	B°	C°	D°
1	105	140	215	265	95	141	208	236	80	142	196	293	80	142	196	293
2	102	132	248	320	113	156	182	292	135	170	200	310	135	170	200	310
3	80	118	230	312	90	145	195	252	49	169	200	244	49	169	200	244
4	35	140	205	275	53	156	220	255	66	140	200	257	66	140	200	257
5	65	155	234	304	119	146	176	298	62	145	180	280	62	145	180	280
6	91	131	197	240	51	141	184	242	79	153	197	272	79	153	197	272

DEUTSCH RBC 70H, DBC 70H, D8170H SERIES

Locksmith Keying Position



Key Positions

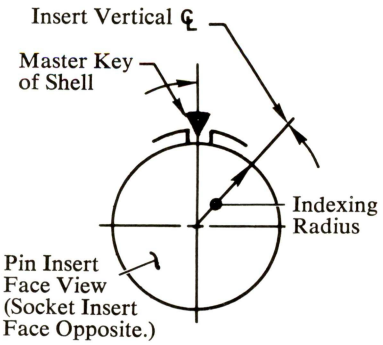
Size	A°	B°	C°	D°
3	23°	97°	187°	–
7	23°	97°	187°	277°
12	30°	105°	195°	270°
19	30°	105°	195°	270°
27	30°	105°	195°	270°
37	30°	105°	195°	270°
61	30°	105°	195°	270°

Alternate Clocking Positions

Size and Arrangement	Alternate Positions						
	N	W	X	Y	Z	B	C
3-00	0°			75°			
7-00	0°					150°	
12-00	0°	15°	50°	75°		150°	220°
12-6	0°	25°	45°	80°		150°	220°
19-00	0°			75°		150°	225°
19-4	0°			22½°		135°	247½°
19-7	0°			75°		150°	225°
19-12	0°	25°	50°	75°		150°	225°
27-00	0°	25°	50°	75°		150°	225°
27-2	0°	25°	50°	75°		150°	225°
27-5	0°			75°		150°	225°
37-50	0°	25°	50°	75°		150°	225°
61-50	0°			75°		150°	225°

▼ Indicates ℄ of Shell

The symbol ∝ indicates insert rotation in degrees



NOTES:

1. For alternate polarizing positions, the connector insert is rotated in respect to the shell.
2. In "Normal Position" (position "N") the insert vertical centerline coincides with the master key of the shell.
3. In "Alternate Positions" (positions "W," "X," "Y," and "Z") the pin insert is rotated oc degrees clockwise relative to ℄ of the master Key of shell.
4. In "Alternate Positions" (positions "W," "X," "Y," and "Z") the socket insert is rotated oc degrees counterclockwise relative to the ℄ of the master Key of the shell.

DEUTSCH ELECTRONIC COMPONENTS DIVISION

Municipal Airport, Banning, California 92220 Telephone: 714-849-6701

REGIONAL SALES OFFICES OF THE DEUTSCH COMPANY

WEST Banning, California, Telephone: 714/849-6701, TWX 910/332-1361
NORTHWEST San Jose, California, Telephone: 408/293-4050
SOUTHWEST Irving, Texas, Telephone: 214/253-7846
MIDWEST Dayton, Ohio, Telephone: 513/228-6731
SOUTHEAST Maitland, Florida, Telephone: 305/831-3442
EAST Farmingdale, L.I., New York, Telephone: 516/694-4640

INTERNATIONAL SALES OFFICES

	Sales representation in the following countries:
Compagnie Deutsch 8 Rue Henri Regnault Saint Cloud (Seine Et Oise) France	Germany, Italy, Netherlands, Belgium, Sweden, Denmark, Switzerland, Spain, Portugal, Greece, Israel, South Africa, Pakistan, Turkey.
Hellermann Deutsch Limited East Grinstead Sussex, England	United Kingdom, Northern Ireland, British-Commonwealth and territories, South Africa, Rhodesia, Norway
Sansei Bussan Co., Ltd. Mitsui Bldg. 4th Annex 1 Chome Muromachi, Nihonbashi, Chuo-Ku, Tokyo, Japan	Islands of Japan

DEUTSCH CONNECTORS ARE DISTRIBUTED IN THE UNITED STATES BY THE G. S. MARSHALL COMPANY

Information can be obtained by calling toll-free 800-423-4186
or by contacting your Marshall representative at the following locations.

LOS ANGELES
El Monte, California 91731
(213) 686-0101

NORTHERN CALIFORNIA
Sunnyvale, California 94086
(408) 732-1100

DAYTON, OHIO
Dayton, Ohio 45414
(513) 275-1806

CHICAGO
Chicago, Illinois 60641
(312) 992-2128

SAN DIEGO
San Diego, California 92111
(714) 278-6350

CANADA
Patlon Aircraft Industries
74 Six Point Road
Toronto 18, Ontario, Canada
(416) 239-7389

NEW YORK
Farmingdale, L.I., New York 11735
(516) 293-4141

FLORIDA
Pompano Beach, Florida 33062
(305) 523-6464

TEXAS
Dallas, Texas 75220
(214) 358-0161

COLORADO
Arvada, Colorado 80002
(303) 427-5858

DETROIT
Roseville, Michigan 48266
(313) 778-5900

COPYRIGHT 1973, THE DEUTSCH CO.

PRINTED IN U.S.A.